Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/20/2016 5:21:14 PM
To: Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]
Subject: 2016 CHP public meeting_092016.ppt
Attachments: 2016 CHP public meeting_092016.ppt

Added the link and also changed barriers a little more.

2016 CHP public meeting_092016....

EERMC Public Meeting on Combined Heat and Power

September 22, 2016

Rhode Island Legislation

"Beginning on November 1, 2012 or before, each electric distribution company shall support the installation and investment in clean and efficient combined heat and power installations at commercial, institutional, municipal, and industrial facilities…."

National Grid Electric's 2017 CHP Program

- **System qualification**
  - Must be an electric customer
  - System must provide electric and thermal output
  - 55% minimum system efficiency
  - Certain types of generating technologies specifications
  - Must be cost effective

3

metering for commissioning and monitoring of system efficiencies

Cost-Effectiveness

- **Must pass screening process and RI benefit cost test (BCR > 1)**
  - Benefit cost test must include cost of all fuels and CHP maintenance
  - Economic development benefit
  - Air quality benefits
  - Adjusted distribution benefits

4

metering for commissioning and monitoring of system efficiencies

2017 CHP Program Recruitment

- **Customers can initiate or National Grid may approach customers who could be candidates**
- **Customer works with National Grid account person to coordinate**
  - Engineering study to identify size, scope, and cost
  - Supports program requirements and can also identify barriers to successful implementation
  - Specifies technical requirements (MRD) of system to meet project objectives
  - Cofunded by utility if done by preferred firm

RI CHP Target Markets

- **Markets that we found to be the best target segments are:**
  - Hospitals
  - Universities/Colleges
    - With Central Heating Plants that have a continuous summer load
  - Industrial
  - Nursing Homes
- **These are all large users of hot water and electricity that are coincidentally used**

National Grid Electric's 2017 CHP Program

- **Incentives available for eligible projects**
  - Installation incentive
    - Tiered based on system efficiency
    - Bonus for installation at an energy efficient facility
  - Advanced Gas Technology Incentive
  - Performance incentive for projects greater than 1 MW
  - Caveats
    - Total incentive package cannot exceed 70% of total project cost.
    - Incentives subject to budgetary limitations and caps
    - Projects 1 MW or larger commit to 10 years of operation or will have to refund prorate portion of incentive
    - Incentives greater than $3 million subject to PUC approval

7

metering for commissioning and monitoring of system efficiencies

Requirements of Installed Systems

- **Compliance with Minimum Requirements Document**
- **Thermal and electric metering**
  - Metering hardware should be part of project installation to allow national Grid to collect data
- **O&M services contract required through first major overhaul**
- **Interconnection**
- **Commissioning**
  - 20% of incentive payment retained until commissioning is complete. This can be 6 months or longer after CHP is operational.
- **ISO-NE capacity rights belong to National Grid**
- **Customers will be billed on general services tariff, with a minimum customer charge, as opposed to backup service rate**

8

metering for commissioning and monitoring of system efficiencies

AGT Program (Advanced Gas Technology)

- **The program is based upon adding natural gas load during the company's off peak period, rather than reducing load through conservation efforts**
- **Incentives to innovative projects that add non-heating load**
- **Incentive is minimum of three calculations; need detailed technical report to provide needed data**
  - the additional margin gain from the project, up to 75% of the project's future margin
  - 75% of the incremental project cost
  - the amount needed to buy down the payback period to 1.5 years
  - remaining AGT fund balance
- **Caveats**
  - Incentives greater than $500,000 require PUC approval.
  - Incentives greater than $50,000 (but less than $500,000) require review with the Division and TEC-RI
  - Customers are allowed to participate in both EE and AGT programs as long as they meet both sets of requirements
  - Incentive may be reduced by amount of customer contribution necessary for new or upgraded service/main to serve customer

9

AGT Source of funds DAC filing
Have not yet had a project that received AGT and EE incentives

CHP Project Manager

- **Role of project manager**

- **Provide up front technical resource to help customer decide if technology is worth pursuing.**
- **Provide a one stop contact through National Grid systems.**
- **Interconnection contact help.**
- **Energy Efficiency contact help.**
- **AGT and Performance Payment help after completion.**

CHP Users Guide

- Purpose of the guide book is to help people unfamiliar with the technology understand what the definition of CHP is and how it might apply to their circumstances.
- This guide also gives a high level financial tips on what is available at their disposal for incentives.
- Audiences; Installers, Customers, Performance Contractors.
- Distribution – available on National Grid website.
  - https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/a-guide-to-submitting-chp-applications-for-incentives-in-ri-5202016-final.pdf
- Feedback?

CHP Progress

Successes:

- A 12.5 MW CHP facility installed in 2014, commissioning complete.
- A 60 kW installed at a local multi-family site.
- 75 kW installed at manufacturing, finalizing.

Ongoing:

- Thirteen projects in various stages of investigation

Projects that didn't go ahead:

- Three projects have been studied, but facilities decided not to move ahead.

Current Barriers to CHP in RI.

- **Economics don't meet customer's requirements 4-7 yr. payback.**
- **Perceived as risky**
- **Low priority on customer's radar (not their core business).**
- **Lack of gas distribution.**
- **Low cost of electricity.**
- **Business opportunities in neighboring states.**

Problems found with past projects (and our solutions):

- **Waste heat misstatements or incorrectly installed**
- **Lack of maintenance (Now require service contract)**
- **Fuel price fluctuation.**
- **National Grid(Non EE) slow to help and be responsive**

2017 Energy Efficiency Plan Timeline

- September 29 – EERMC meeting to consider approval
- October 17 – Filing with RI PUC

Feedback and Discussion

- Initiative
- Incentives
- Marketing
- Support
- CHP success factors
- Other topics

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/20/2016 2:21:54 PM
To: Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]
CC: Lonergan, Beth [beth.lonergan@nationalgrid.com]
Subject: 2016 CHP public meeting_092016.ppt
Attachments: 2016 CHP public meeting_092016.ppt

I took a stab at updating the slides. I added a small sentence to slide 8.

I did not know what you were looking for on slide 11, CHP users guide?

Do we have the weblink for the CHP guidebook? We could put that in on distribution line. Does Alice have that link?

2016 CHP public meeting_092016....

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metering for commissioning and monitoring of system efficiencies

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metering for commissioning and monitoring of system efficiencies

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Sent: 9/21/2016 7:54:57 PM
To: Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]
Subject: 2016 CHP public meeting_092016.ppt
Attachments: 2016 CHP public meeting_092016.ppt

I added the marketing tool picture. You will have to open it in the slide itself because it is a more than one page flyer.

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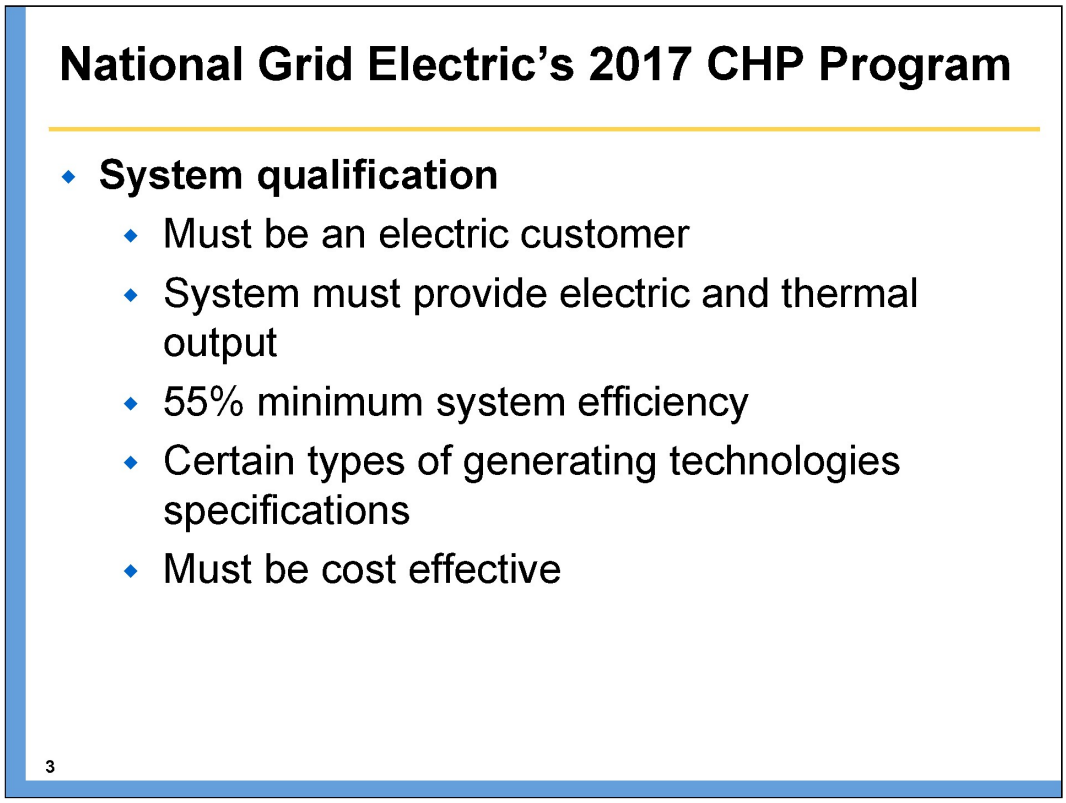

metering for commissioning and monitoring of system efficiencies

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Marketing Tool

15

Feedback and Discussion

- Initiative
- Incentives
- Marketing
- Support
- CHP success factors
- Other topics

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/28/2016 6:05:17 PM
To: Paine, Fred [fred.paine@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]
Subject: FW: EXT || Re: [Non-DoD Source] Newport Navy Meeting at RIAC - Attendees for Oct 6th Meeting

Are you available for a meeting next week at the Navy?

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Kearns, Christopher (DOA) [mailto:Christopher.Kearns@energy.ri.gov]
Sent: Wednesday, September 28, 2016 2:03 PM
To: Call, Susan O CIV NAVFAC LANT, PW; Lattimer, Timothy [USA]; Stasiuk, Paul A.; Kennedy, John C.; Ferris, Gerald Jr; Grant, Carol (DOA); Sholly, Rachel (DOA); Wais, Soran [USA]; Murray, Christopher J CIV NAVFAC HQ, REPO; Breckner, John K CIV NAVFAC MIDLANT, PW; Afonso, Jacques R.; Pascual, Beth A CIV NAVFAC, PW64; Springsteel, Ian
Cc: Alicia Seabury; Liberty Luciano
Subject: EXT || Re: [Non-DoD Source] Newport Navy Meeting at RIAC - Attendees for Oct 6th Meeting

Hi Chris,

Thanks! The parties need the NDA form by Friday at the latest to review.

The CHP NGrid team should be able to cover the gas topic when discussing CHP.

Thanks,

Chris

Get Outlook for iOS

On Wed, Sep 28, 2016 at 1:57 PM -0400, "Murray, Christopher J CIV NAVFAC HQ, REPO" <chris.j.murray@navy.mil> wrote:

Thanks, Chris.

National Grid is also the local retail natural gas provider so it would be good for someone to attend to talk to the natural gas supply and the viability of natural gas fueled cogen.

I still owe you an NDA and a draft agenda.

From: Kearns, Christopher (DOA)
Sent: Wednesday, September 28, 2016 12:48:42 PM
To: Ferris, Gerald Jr; Springsteel, Ian; Kennedy, John C.; Grant, Carol (DOA); Afonso, Jacques R.; Stasiuk, Paul A.; Murray,

Christopher J CIV NAVFAC HQ, REPO; Pascual, Beth A CIV NAVFAC, PW64; Call, Susan O CIV NAVFAC LANT, PW; Breckner, John K CIV NAVFAC MIDLANT, PW; Wais, Soran [USA]; Lattimer, Timothy [USA]; Sholly, Rachel (DOA); Murray, Christopher J CIV NAVFAC HQ, REPO; Call, Susan O CIV NAVFAC LANT, PW; Breckner, John K CIV NAVFAC MIDLANT, PW
Cc: Liberty Luciano; Alicia Seabury
Subject: [Non-DoD Source] Newport Navy Meeting at RIAC - Attendees for Oct 6th Meeting

Good Afternoon,

Here is the list of anticipated attendees for next Thursday's (Oct 6th) meeting from 10am-1pm at RIAC in Warwick. Some of the attendees may not be arriving until 10:30.

If there is anyone that I have missed, please let me know.

1. Ian Springsteel, National Grid (Renewables)
2. John Kennedy, National Grid (Interconnection)
3. Gerald Ferris, National Grid (CHP)
4. Jacques Afonso, National Grid (CHP/Efficiency)
5. Chris Kearns, RI OER
6. Carol Grant, RI OER
7. CDR Jeremy Adams, Public Works Officer, NS Newport
8. Dan Sullivan, Asset Management Branch Head, NS Newport
9. John Reichert, Installation Energy Manager, NS Newport
10. Susan Call, REPO Program Manager, NAVFAC LANT
11. Beth Pascual, REPO Project Manager, NAVFAC LANT
12. John Breckner, REPO Deputy Project Manager, NAVFAC ML
13. Chris Murray, REPO Project Support Lead, REPO HQ
14. Aaron Willis, REPO Contract support, BAH
15. Soran Wais, REPO Contract Support, BAH
16. Tim Lattimer, REPO Contract Support, BAH
17. Susan Call, NS Newport
18. John Breckner, NS Newport
19. Chris Murray, NS Newport

Thanks,

Chris

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 10/3/2016 8:09:22 PM
To: Paine, Fred [fred.paine@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
Subject: FW: EXT || OER Meeting with Newport Navy/National Grid at RIAC on Thursday - Question on Logistics
Attachments: NAVY DRAFT AGENDA.pdf; Navy Questions.docx; Newport NDA.docx

Not sure if you guys got copies of these documents or not but it talks about what will be discussed.

Gerald(Jed) Ferris
NE CHP Program Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Kearns, Christopher (DOA) [mailto:Christopher.Kearns@energy.ri.gov]
Sent: Monday, October 03, 2016 2:20 PM
To: Ferris, Gerald Jr
Subject: RE: EXT || OER Meeting with Newport Navy/National Grid at RIAC on Thursday - Question on Logistics

Hi Gerald,

Did you not receive these documents from the Navy late last week? The RI Airport Corporation is located at:

2000 Post Rd, Warwick, RI 02886
https://www.google.com/maps/place/Rhode+Island+Airport+Corporation/@41.726109,-71.4349101,15z/data=!4m2!3m1!1s0x0:0xab4820fdec644cf9?sa=X&ved=0ahUKEwiOl_Lgn7_PAhXFeT4KHZSTBg4Q_BIIezAK

Thanks,

Chris

-----Original Message-----
From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Monday, October 03, 2016 1:54 PM
To: Kearns, Christopher (DOA) <Christopher.Kearns@energy.ri.gov>
Subject: RE: EXT || OER Meeting with Newport Navy/National Grid at RIAC on Thursday - Question on Logistics

Chris,

Is there an agenda to this meeting?

Where is RIAC? Do you have a physical address?

Thanks

Jed

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-----Original Message-----
From: Kearns, Christopher (DOA) [mailto:Christopher.Kearns@energy.ri.gov]
Sent: Monday, October 03, 2016 12:25 PM
To: Alicia Seabury

Cc: Aaron Willis; Kemp, Debra K CIV NAVFAC HQ, AM; Baxter, John W CIV NAVFAC HQ, REPO; Murray, Christopher J CIV NAVFAC HQ, REPO; Pascual, Beth A CIV NAVFAC, PW64; Ferris, Gerald Jr; Springsteel, Ian; Kennedy, John C.; Grant, Carol (DOA); Afonso, Jacques R.; Stasiuk, Paul A.; Alicia Seabury; Liberty Luciano; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Call, Susan O CIV NAVFAC LANT, PW; Breckner, John K CIV NAVFAC MIDLANT, PW; Wais, Soran [USA]; Lattimer, Timothy [USA]; Adams, Jeremy P CDR NAVFAC MIDLANT, PWD Newport PWO
Subject: EXT || OER Meeting with Newport Navy/National Grid at RIAC on Thursday - Question on Logistics

Hi Alicia,

Hope all is well. For the OER meeting with National Grid/Navy on Thursday morning at RIAC office, would you mind sending an email to the group regarding the parking process and if there is any ticket stub that they should possibly bring to the RIAC office?

There will be several of us driving over to RIAC and I know that a few from the Navy are flying directly into TF Green for this meeting. Is there any information that RIAC can provide regarding parking or where your office is located when entering TF Green?

Thanks for your help and for RIAC allowing us to use your conference space!

Chris

-----Original Message-----
From: Murray, Christopher J CIV NAVFAC HQ, REPO [mailto:chris.j.murray@navy.mil]
Sent: Friday, September 30, 2016 2:23 PM
To: Kearns, Christopher (DOA) <Christopher.Kearns@energy.ri.gov>; Pascual, Beth A CIV NAVFAC, PW64 <beth.pascual@navy.mil>; Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Springsteel, Ian <Ian.Springsteel@nationalgrid.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Grant, Carol (DOA) <Carol.Grant@energy.ri.gov>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>; Stasiuk, Paul A. <Paul.Stasiuk@nationalgrid.com>; Alicia Seabury <aseabury@pvdairport.com>; Liberty Luciano <LLuciano@pvdairport.com>; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport <daniel.l.sullivan3@navy.mil>; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport <john.reichert@navy.mil>; Call, Susan O CIV NAVFAC LANT, PW <susan.call@navy.mil>; Breckner, John K CIV NAVFAC MIDLANT, PW <john.breckner@navy.mil>; Wais, Soran [USA] <Wais_Soran@bah.com>; Lattimer, Timothy [USA] <Lattimer_Timothy@bah.com>; Adams, Jeremy P CDR NAVFAC MIDLANT, PWD Newport PWO <jeremy.p.adams@navy.mil>
Cc: Aaron Willis <Willis_Aaron@bah.com>; Kemp, Debra K CIV NAVFAC HQ, AM <debra.kemp@navy.mil>; Baxter, John W CIV NAVFAC HQ, REPO <john.w.baxter@navy.mil>
Subject: Meeting with Newport Navy - Discussing their potential solar, CHP and other energy projects

All,

We look forward to meeting you next week to discuss the potential energy projects at Naval Station Newport. I have attached an NDA, a draft agenda, and sample questions.

If you have any questions, please let me know.

Best,
Chris Murray
Renewable Energy Program Office
Department of the Navy
202-685-0621

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For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

DRAFT AGENDA
Potential Energy Projects at Naval Station Newport

6 October 2016
RI Airport Corporation
Executive Conference Room
2000 Post Rd, Warwick, RI 02886

10:00 Introductions

10:15 Purpose of the Meeting

10:45 Brief Synopsis of the Potential Energy Projects

Model 2 Real Estate Transaction

Proposed In-kind Consideration

10:30 Discussion of CHP state incentives

Q&A

11:15 Discussion of solar PV state incentives

Virtual Net Metering

RECs

Q&A

12:00 Other Potential Incentives or Considerations

12:30 Wrap-up/Next Steps

Questions

CHP

1. Would National Grid be able to support the increased natural gas capacity to NAVSTA Newport required by a CHP plant up to 5 MW in size, if the Department of the Navy chose to build a CHP plant behind-the-meter? If so, what regional or local natural gas delivery constraints exist that could impact reliability?

2. Are there any incentives provided by national grid for a behind-the-meter CHP Plant?

3. What is the interconnection requirement for CHP integration behind-the-meter?

4. Is there any cap on CHP system size that would prevent a potential project from qualifying for incentives?

5. What is the current natural gas tariff for the base? And would it need to be changed if the Navy pursued CHP?

Solar PV

1. What incentives apply to solar PV?

2. What is a distinct parcel under the virtual net-metering statute?

3. What RECs programs may be applicable for the Newport solar PV project?

4. What would be the interconnection requirements for the three parcels?

5. What is the estimate timeline for the interconnection process?

6. Under RI's virtual net-metering statute, can the transaction be structured whereby the solar PV developer is not a "wholesaler" (i.e. a sale of electricity to National Grid for "resale" to the off-taker/Navy, which would subject the developer to FERC regulation) and the off-taker/Navy is not "purchasing" the load (i.e. the current RFP allows a real estate transaction to occur; it does not allow an acquisition of electricity)?

NON-DISCLOSURE STATEMENT

I, _____, the undersigned, herby certify that the following statements are true and correct and that I understand and agree to be bound by the commitments contained herein.

I am attending an informational meeting hosted by the State of Rhode Island on 6 October 2016 with the Department of the Navy (DON), representatives from National Grid , and DON's downselected Offeror (Offeror) to discuss a potential energy project that the Offeror has proposed to build at Naval Station Newport in Newport, Rhode Island pursuant to a Request for Proposal issued by DON on 18 December 2015, which is available at: https://www.fbo.gov/index?s=opportunity&mode=form&id=683455f9e2e7a6f7a032a8eb1ca21a5a&tab=core&_cview=1.

I fully acknowledge that the Offeror's proposal is currently under review by DON and that negotiations are ongoing between the Offeror and DON.

Until DON concludes the source selection process, I agree not to disclose or otherwise divulge the identity of the Offeror or any details regarding the Offeror's proposal unless expressly requested or authorized by DON and the Offeror in order to facilitate information requests that DON or the Offeror may have. I fully acknowledge that the unauthorized disclosure of such information could compromise the integrity of the source selection process.

_____

Signature

_____

Date

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 10/11/2016 5:09:33 PM
To: Edwards, Bruce S. [bruce.edwards@nationalgrid.com]; Foran, Matthew A. [matthew.foran@nationalgrid.com]
Subject: RE: Navy CHP

Bruce,

I was thinking you and I could spend 30 minutes after our Leidos meeting Friday to discuss how this solution was deployed at Erving.

From: Edwards, Bruce S.
Sent: Tuesday, October 11, 2016 1:06 PM
To: Foran, Matthew A.
Cc: Paine, Fred
Subject: RE: Navy CHP

Here are the two contacts that I have.

The first one is the company that Erving is using currently. The second one is AVSG (Mike Manning), looks like they are already supplying CNG out in RI. See link supplied below.

The Company IS NG Advantage
NG Advantage LLC
480 Hercules Drive
Colchester VT 05446
802=-760-1167 X 519

AVSG:

http://poweredbycng.com/avsg-tf-green-airport-cng-station-warwick/

From: Foran, Matthew A.
Sent: Monday, October 10, 2016 2:58 PM
To: Edwards, Bruce S.
Cc: Paine, Fred
Subject: FW: Navy CHP

Bruce

Can you reach out to Fred with info on how Erving used CNG for their CHP? The Navy in Newport would like to do a CHP but they may need an onsite CNG solution because gas capacity is an issue.

Matt

From: Paine, Fred
Sent: Monday, October 10, 2016 2:47 PM
To: Foran, Matthew A.
Subject: RE: Navy CHP

Sounds good

From: Foran, Matthew A.
Sent: Monday, October 10, 2016 1:13 PM
To: Paine, Fred
Subject: Navy CHP

Fred

Let's talk to Bruce about the CNG solution that was used for the Erving Paper CHP….

Matt

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 10/12/2016 8:21:10 PM
To: Moreira, David [david.moreira@nationalgrid.com]
Subject: Jim report
Attachments: Rhode Island Monthly October.docx

Dave,

This is what I have at the moment – not really proofed etc – just what I have. I am waiting on Complex gas and DG.

Fred

Rhode Island Monthly October....

Fred Paine
Commercial Leader Rhode Island
National Grid
339-223-6763

Rhode Island Monthly Update

10.14.16

Sales

- **10 % Challenge -** In January we accepted a challenge from Tim to increase our paid MWH by 10 % by October 30. I am happy to say that as of October 10th we have exceeded last year's paid MWH by 14%. We plan to build on that for the remainder of the month.
- **Providence Street Lighting –** National Grid issued a $1,065,156 dollar incentive check to the City of Providence and claimed 6698 annual MWHs. The expectation is that once commissioning is complete we will claim an additional 4465 annual MWHs and pay an additional $710,104 incentive.
- **Crown Plaza –** is installing a 150 KW CHP unit. It is expected to be installed and operational in 2016. Approximately 1000 MWHs.
- **US Navy -** This is confidential and should not be shared outside company. We met with the Navy, OER, and a Solar PV developer on October 6th. The Navy has 3 brownfield sites in Newport and plans to enter into a 37 year lease with the solar developer. The developer will then install 21,000 MWH of Solar PV to be sold to a public entity, not the Navy. The payment to the Navy will be an "in kind" payment. The solar developer will build and operate a 5 MW CHP unit on the Navy base, thereby providing the Navy their desired reliability. Delivering the required gas will be a challenge.

EE by the numbers through September 2016

RI Electric:

- Shareholder incentive target $ 3.8M - Projected Shareholder Incentive earnings = $4.2M
- Residential savings at 70% of goal – savings forecast 107%, spending forecast 108%
- Low Income savings at 72% of goal – savings forecasts 103%, spending forecast 100%
- C&I savings at 55% of goal – savings forecast 112%, spending forecast 97%
- C&I YTD savings paid - up 8% YOY.
- Continuous improvement – Sales up month over month 95% from Sept 2015

RI Gas:

- Shareholder incentive target $1.25M - Projected Shareholder Incentive $1.27M
- Residential savings at 66 % of goal – savings forecast 103%, spending forecast 96%
- Low Income savings at 52% of goal – savings forecasts 101%, spending forecast 100%
- C&I savings at 36% of goal YTD – savings forecast 101%, spending forecast 93%
- C&I YTD savings paid – up 23% over 2015 YTD
- C &I sales up 16% over this time last year.
- Resi and low income savings paid down 2% YOY – no risk to goal achievement

Complex Gas Sales

Distributed Generation

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 10/14/2016 12:12:37 PM
To: Lonergan, Beth [beth.lonergan@nationalgrid.com]; McAteer, Michael L. [michael.mcateer@nationalgrid.com]; Ryan, MaryAnne [maryanne.ryan@nationalgrid.com]; RIVERS, BENJAMIN [benjamin.rivers@nationalgrid.com]; Vohra, Puja [puja.vohra@nationalgrid.com]; Rennick, Kevin M. [kevin.rennick@nationalgrid.com]; Kennedy, John C. [john.kennedy@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Carriero, Wendy M. [wendy.carriero@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]; Drummond, Jerry [jerry.drummond@nationalgrid.com]; Arthur, Kathleen [kathleen.arthur@nationalgrid.com]; Golding, Rebecca [rebecca.golding@nationalgrid.com]; Osburn, Janine L. [janine.osburn@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Doyle, Kerrie [kerrie.doyle@nationalgrid.com]; Matulaitis, Patricia [patricia.matulaitis@nationalgrid.com]; DuPont, Alyssa [alyssa.dupont@nationalgrid.com]; Hermanowski, Jessica [jessica.hermanowski@nationalgrid.com]; Ford, Diane [diane.ford@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
CC: Moreira, David [david.moreira@nationalgrid.com]
Subject: Tim's Monthly report
Attachments: Rhode Island Monthly October.docx; TimHoranPerRev_Sep_30_2016.ppt

Good morning,

Attached is the monthly report I put together for Jim to present to Tim. Fantastic Job everyone !

Rhode Island Monthly October....

TimHoranPerRev...

Fred Paine
Commercial Leader Rhode Island
National Grid
339-223-6763

Rhode Island Monthly Update

10.14.16

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Rhode Island Monthly Update

10.14.16

Complex Gas Sales

- Tracking behind work plan target for new services (RI has completed 731 new service installations against a plan of 971). The total plan calls for 1500 new services (731 installed and 344 in the queue). Could fall short of YE plan due to customer demand for service installations on the decline.

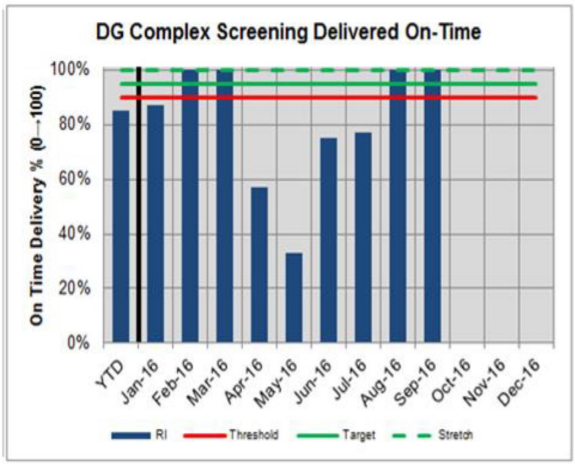
- Tracking below target for growth main installations, only 36% to plan. Should see a shift in installations due to customer readiness and moratorium deadlines. Sold inventory still remains good at 75% to YE projections

- Transitioned Strategic Sales under the Complex Gas Sales umbrella. Met with the Jurisdiction team and managed accounts to give an update on the new process.

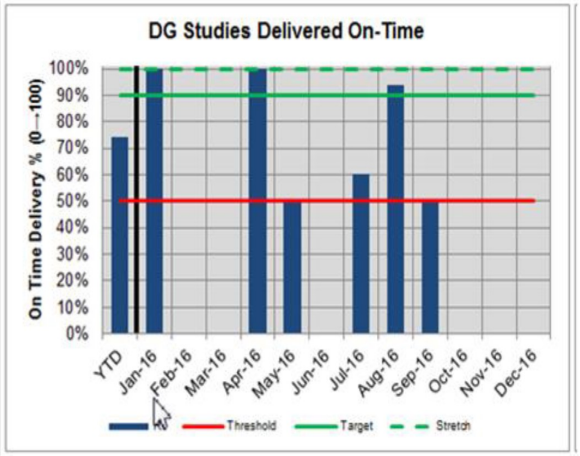
Distributed Generation

- Safety
  - SUSA's; Annual Goal (staff composite): 157%

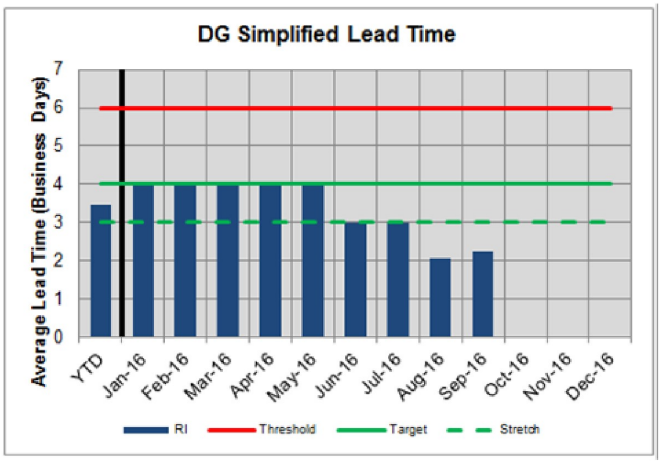
- DG Metrics
  - APP - Complex Application: Study On-Time (Threshold: 75%, Target: 85%, Stretch: 100%)
    - YTD(April 1 – present): 100% September: 100%
    - Note: graph to be provided next month.
  - Complex Screening Delivered On-Time (Threshold: 90%, Target: 95%, Stretch: 100%)
    - YTD: 85% September: 100%
  - DG Studies Delivered On-Time (Threshold: 50%, Target: 95%, Stretch: 100%)
    - YTD: 74% September: 50% (2 on-time, 2 delivered late)
    - Note: 2 studies delivered late pre-dated added resources in group.
  - DG Simplified Lead Time (Threshold: 6 days, Target: 4 days, Stretch: 3 days)
    - YTD: 3.5 days September: 2.24 days
  - DG Meter Set (Threshold: 92%, Target: 94%, Stretch: 96%)
    - YTD continues to be ahead of target.
    - Note: September values not available as of today.
- Regulatory Docket 4483
    - Recent IRS Notice 2016-36 on federal tax liability of Distribution Line interconnections
    - Ernst & Young, engaged by the Company last month, has concluded that the Notice is not clear enough on the issue for the Company to stop collecting taxes for DG interconnections. Based on this report, the Tax Department has recommended that the Company continue to collect these taxes. The PUC will be updated this week regarding the Company's position on the matter by Legal.
- DG Meter Cost Recovery: 9/23/16 meeting with CMS and Regulatory occurred. CMS now has necessary information and contacts to recover additional resources required in addressing RE Growth activity.



Percentage of application screening reviews completed within regulatory time line (or Service Agreement delivered to customer)



Percentage of DG project studies delivered on time to customers



Number of business days from application received until Conditional Approval

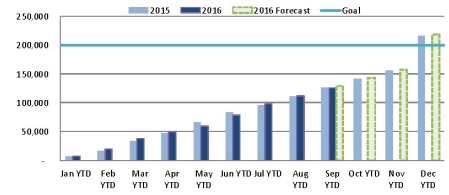
RI EE Portfolio – 09/30/16

nationalgrid

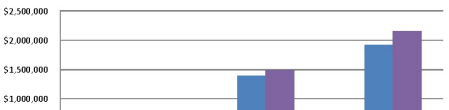
RI - Electric

Residential savings at 70% of goal - savings forecast 107%, spending forecast 108%.
Low Income savings at 72% of goal - savings forecast 103%, spending forecast 100%.
C&I savings at 55% of goal - savings forecast 112%, spending forecast 97%.

RI Electric 2016 Year-to-Date Achievement vs 2015 by Month (Based on Annual MWh Savings)



RI Electric 2016 Earned Shareholder Incentive

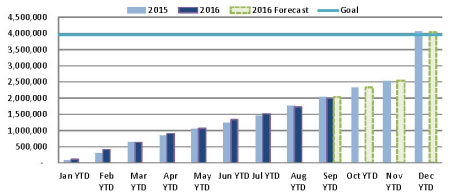


	Low Income	Residential	C&I
Actual			
Target	$559,400	$1,393,700	$1,925,060
Forecast	$577,178	$1,496,292	$2,154,756

RI - Gas

Residential savings at 66% of goal - savings forecast 103%, spending forecast 96%.
Low Income savings at 52% of goal - savings forecast 101%, spending forecast 100%.
C&I savings at 36% of goal- savings forecast 101%, spending forecast 93%.

RI Gas 2016 Year-to-Date Achievement vs 2015 by Month (Based on Annual therm Savings)



RI Gas 2016 Earned Shareholder Incentive

	Low Income	Residential	C&I
Actual			
Target	$267,400	$598,900	$385,300
Forecast	$271,237	$619,824	$387,596

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 2/17/2017 3:10:15 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: FW: Navy Newport 4500 KW CHP
Attachments: EE6574 CHP_RI.pdf

Tom,

Did we ever confirm gas availability ? If I remember right it was a real concern.

From: Ferris, Gerald Jr
Sent: Friday, February 17, 2017 8:44 AM
To: 'naveenk@nkengineers.com'
Cc: Paine, Fred
Subject: Navy Newport 4500 KW CHP

Here is the application

https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/custom_ri_retrofit_form_final.pdf

Here is the long drawn out how to do a CHP project.

https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/a-guide-to-submitting-chp-applications-for-incentives-in-ri-5202016-final.pdf

A quick summary sheet we just built for it too.

EE6574
CHP_RI.pdf

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

Rhode Island

nationalgrid
HERE WITH YOU. HERE FOR YOU.

Cut your energy cost with cogeneration

Energy-efficiency on a large scale

Managing the energy needs of a big facility can be a daunting prospect. National Grid routinely works with commercial, industrial, and municipal customers to reduce energy costs on a large scale. One way we achieve this is through cogeneration, or combined heat and power (CHP), a highly efficient form of energy conversion that generates heat and electricity simultaneously, then captures and reuses heat that would otherwise be wasted.

For qualifying customers with a large-scale facility or a multi-building complex with dependable electrical and thermal loads, National Grid can connect you with a CHP vendor to explore the feasibility of CHP installation. National Grid provides incentives to customers if the project qualifies under our CHP program guidelines.

Current Incentives for Combined Heat and Power:

The incentives for the CHP units are designed specifically with large-scale projects in mind, with higher incentives for projects that incorporate more standard building energy efficiency measures in advance of CHP project development.

Available incentives are as follows*:

Tier 1: $900/Net kW for CHP with annual efficiency >55% and <60%.

Tier 2: $1,000/Net kW for CHP with annual efficiency > or equal to 60%.

Tier 3: Reduce the site energy use at least 5% or identified by TA study -$1,125/kW for CHP projects with annual efficiency >55% and <60%.

Tier 4: Reduce the site energy use at least 5% or identified by TA study - $1,250/kW for CHP projects > or equal to 60% annual efficiency.

Eligibility Criteria:

- Performance Incentives are available for projects that are Net Annual KW over 1 MW and can be up to $20/kW/yr for up to 10 years.
- Advanced Gas Technology Incentives are available for projects that qualify for gas driven projects.
- Maximum incentive of all three sources cannot exceed 70% of the project cost.
- Technical Assistance Engineering subsidy is available to study projects.

For more information about our incentives for CHP call us at 1-800-787-1706 or visit ngrid.com/ri-chp

Visit **ngrid.com/business** and connect with us on

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 2/17/2017 3:15:10 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: Re: Navy Newport 4500 KW CHP

We did not!
I spoke to John Reichert and he had no info.
Location?
Size?
Steam load that would be offset (might not matter if displacing steam from central power plant - non firm because of supply issues).
Might be connected to a Nodal Plant that is firm gas.
More questions than answers!
Tom

Sent from my Mobile Device

On Feb 17, 2017, at 10:10 AM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:

> Tom,
>
> Did we ever confirm gas availability ? If I remember right it was a real concern.
>
> ---
> **From:** Ferris, Gerald Jr
> **Sent:** Friday, February 17, 2017 8:44 AM
> **To:** 'naveenk@nkengineers.com'
> **Cc:** Paine, Fred
> **Subject:** Navy Newport 4500 KW CHP
>
> Here is the application
>
> https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/custom_ri_retrofit_form_final.pdf
>
> Here is the long drawn out how to do a CHP project.
>
> https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/a-guide-to-submitting-chp-applications-for-incentives-in-ri-5202016-final.pdf
>
> A quick summary sheet we just built for it too.
>
> Thanks
>
> Jed
>
> Gerald(Jed) Ferris
> NE CHP Program Manager

National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

<EE6574 CHP_RI.pdf>

Message

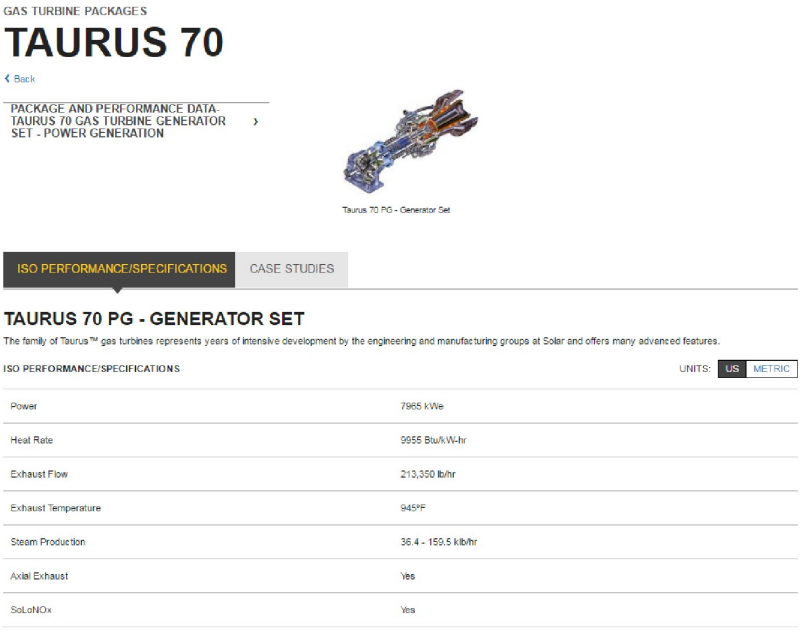
From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 2/22/2017 8:12:30 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
CC: Afonso, Jacques R. [jacques.afonso@nationalgrid.com]
Subject: RE: Navy Newport 4500 KW CHP

Tom can confirm, but my guess is that if this project is sold and needs a major gas reinforcement, that it would not be installed until sometime on 2018, ,maybe even 2019…….

From: Ferris, Gerald Jr
Sent: Wednesday, February 22, 2017 2:47 PM
To: Dion, Thomas; Mirabile, Gerald J.
Cc: Paine, Fred; Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Just spoke to the contractor; he said he would provide the cut sheet on the worst case scenario of the Taurus 70 or a 7 MW turbine, I think made by Sola. They are entertaining two sizes but I figured we would go down the worst case path so keep that in mind that they could scale back if gas is available for a 4.6 MW size or less. He would also try and provide the offsetting load as well at a high level.

Stay tuned.



GAS TURBINE PACKAGES

TAURUS 70

‹ Back

PACKAGE AND PERFORMANCE DATA- TAURUS 70 GAS TURBINE GENERATOR SET - POWER GENERATION ›

Taurus 70 PG - Generator Set

ISO PERFORMANCE/SPECIFICATIONS | CASE STUDIES

TAURUS 70 PG - GENERATOR SET

The family of Taurus™ gas turbines represents years of intensive development by the engineering and manufacturing groups at Solar and offers many advanced features.

ISO PERFORMANCE/SPECIFICATIONS — UNITS: US | METRIC

Power	7965 kWe
Heat Rate	9955 Btu/kW-hr
Exhaust Flow	213,350 lb/hr
Exhaust Temperature	945°F
Steam Production	36.4 - 159.5 klb/hr
Axial Exhaust	Yes
SoLoNOx	Yes

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907

401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dion, Thomas
Sent: Wednesday, February 22, 2017 2:30 PM
To: Mirabile, Gerald J.
Cc: Paine, Fred; Ferris, Gerald Jr; Afonso, Jacques R.
Subject: Re: Navy Newport 4500 KW CHP

Jerry,
I need the exact location of the proposed CHP.
Also need CFH of new unit and CFH offset of new unit.
If it is offsetting load at the non firm plant we are in trouble.
The unit needs to offset firm load.
We could never supply the non firm plant with firm because of constraints on the island.
We will not be able to add a large load above the non firm.
Tom

Sent from my Mobile Device

On Feb 22, 2017, at 2:24 PM, Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com> wrote:

> The largest account is non firm on the base. There are a lot of things we will need to sort out. Tom. Let us know what is needed. ??
>
> Jacque, you should be aware of this as well. See email string.
>
> Sent from my iPhone
>
> On Feb 22, 2017, at 2:01 PM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:
>
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> > **Sent:** Wednesday, February 22, 2017 1:46 PM
> > **To:** Paine, Fred
> > **Cc:** Ferris, Gerald Jr; Dion, Thomas
> > **Subject:** Re: Navy Newport 4500 KW CHP
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Sent: Friday, February 17, 2017 8:44 AM
To: 'naveenk@nkengineers.com'
Cc: Paine, Fred
Subject: Navy Newport 4500 KW CHP

Here is the application

https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/custom_ri_retrofit_form_final.pdf

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A quick summary sheet we just built for it too.

Thanks

Jed

Gerald(Jed) Ferris
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280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

<EE6574 CHP_RI.pdf>

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 2/22/2017 8:10:20 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
CC: Afonso, Jacques R. [jacques.afonso@nationalgrid.com]
Subject: RE: Navy Newport 4500 KW CHP

Jed,

My guess is Tom is going to need the exact location of the CHP. Can they send a site map, with an X marks the spot ?

From: Ferris, Gerald Jr
Sent: Wednesday, February 22, 2017 2:47 PM
To: Dion, Thomas; Mirabile, Gerald J.
Cc: Paine, Fred; Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Just spoke to the contractor; he said he would provide the cut sheet on the worst case scenario of the Taurus 70 or a 7 MW turbine, I think made by Sola. They are entertaining two sizes but I figured we would go down the worst case path so keep that in mind that they could scale back if gas is available for a 4.6 MW size or less. He would also try and provide the offsetting load as well at a high level.

Stay tuned.

GAS TURBINE PACKAGES

TAURUS 70

‹ Back

PACKAGE AND PERFORMANCE DATA- TAURUS 70 GAS TURBINE GENERATOR SET - POWER GENERATION ›

Taurus 70 PG - Generator Set

ISO PERFORMANCE/SPECIFICATIONS | CASE STUDIES

TAURUS 70 PG - GENERATOR SET

The family of Taurus™ gas turbines represents years of intensive development by the engineering and manufacturing groups at Solar and offers many advanced features.

ISO PERFORMANCE/SPECIFICATIONS — UNITS: US | METRIC

Power	7965 kWe
Heat Rate	9955 Btu/kW-hr
Exhaust Flow	213,350 lb/hr
Exhaust Temperature	945ºF
Steam Production	36.4 - 159.5 klb/hr
Axial Exhaust	Yes
SoLoNOx	Yes

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Cc: Paine, Fred; Ferris, Gerald Jr; Afonso, Jacques R.
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From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 2/22/2017 12:59:32 PM
To: Mirabile, Gerald J. (Gerald.Mirabile@nationalgrid.com) [gerald.mirabile@nationalgrid.com]
CC: Gerald.Ferris@nationalgrid.com
Subject: FW: Navy Newport 4500 KW CHP
Attachments: EE6574 CHP_RI.pdf

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EE6574
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Rhode Island

nationalgrid
HERE WITH YOU. HERE FOR YOU.

Cut your energy cost with cogeneration

Energy-efficiency on a large scale

Managing the energy needs of a big facility can be a daunting prospect. National Grid routinely works with commercial, industrial, and municipal customers to reduce energy costs on a large scale. One way we achieve this is through cogeneration, or combined heat and power (CHP), a highly efficient form of energy conversion that generates heat and electricity simultaneously, then captures and reuses heat that would otherwise be wasted.

For qualifying customers with a large-scale facility or a multi-building complex with dependable electrical and thermal loads, National Grid can connect you with a CHP vendor to explore the feasibility of CHP installation. National Grid provides incentives to customers if the project qualifies under our CHP program guidelines.

Current Incentives for Combined Heat and Power:

The incentives for the CHP units are designed specifically with large-scale projects in mind, with higher incentives for projects that incorporate more standard building energy efficiency measures in advance of CHP project development.

Available incentives are as follows*:

Tier 1: $900/Net kW for CHP with annual efficiency >55% and <60%.

Tier 2: $1,000/Net kW for CHP with annual efficiency > or equal to 60%.

Tier 3: Reduce the site energy use at least 5% or identified by TA study -$1,125/kW for CHP projects with annual efficiency >55% and <60%.

Tier 4: Reduce the site energy use at least 5% or identified by TA study - $1,250/kW for CHP projects > or equal to 60% annual efficiency.

Eligibility Criteria:

- Performance Incentives are available for projects that are Net Annual KW over 1 MW and can be up to $20/kW/yr for up to 10 years.
- Advanced Gas Technology Incentives are available for projects that qualify for gas driven projects.
- Maximum incentive of all three sources cannot exceed 70% of the project cost.
- Technical Assistance Engineering subsidy is available to study projects.

For more information about our incentives for CHP call us at 1-800-787-1706 or visit ngrid.com/ri-chp

Visit **ngrid.com/business** and connect with us on

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 2/24/2017 3:51:18 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; Afonso, Jacques R. [jacques.afonso@nationalgrid.com]
Subject: RE: Navy Newport 4500 KW CHP

No, I just need to know what is happening there.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Friday, February 24, 2017 10:40 AM
To: Dion, Thomas; Mirabile, Gerald J.
Cc: Paine, Fred; Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Yes sir, working on it.

Do they approach us with a Firm Gas request, is that how this works?

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From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 2/24/2017 3:18:29 PM
To: Paine, Fred [fred.paine@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
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Fred,
That is what we will ask Engineering when I get all the info I need.
Tom

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From: Paine, Fred
Sent: Friday, February 24, 2017 10:12 AM
To: Dion, Thomas; Ferris, Gerald Jr; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
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Sent: 2/24/2017 4:42:08 PM
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Potential CIAC

From: Dion, Thomas
Sent: Friday, February 24, 2017 10:53 AM
To: Paine, Fred; Ferris, Gerald Jr; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Why not AGT?
Because of the potential CIAC for the reinforcement or the non firm operation?

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Sent: Friday, February 24, 2017 10:42 AM
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Subject: RE: Navy Newport 4500 KW CHP

I would think AGT funding would be out.

From: Ferris, Gerald Jr
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Cc: Afonso, Jacques R.
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Yes we can give them an electric incentive, most likely they may not qualify under our AGT funding though? We will have to research that question on the AGT side.

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CC: Afonso, Jacques R. [jacques.afonso@nationalgrid.com]
Subject: RE: Navy Newport 4500 KW CHP

I am not sure how they are setting this up. They prefer gas. If they burned oil in the CHP we would give them an electric efficiency incentive. Electric incentive is neutral on fuels.

If they consume oil in their CHP or currently in their steam plant, I am not sure if they are still qualified for AGT funds, I have to look at the qualification wording.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dion, Thomas
Sent: Friday, February 24, 2017 11:05 AM
To: Ferris, Gerald Jr; Paine, Fred; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

The CHP or the Steam Plant consumes the oil?
If the CHP is straight gas, would it qualify?

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Friday, February 24, 2017 11:03 AM
To: Dion, Thomas; Paine, Fred; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

I am thinking because they consume a lot of oil but I would have to read the filing on what qualifies a project and not just 31% usage through the May Oct timeframe

Gerald(Jed) Ferris
NE CHP Program Manager
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280 Melrose Street

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401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dion, Thomas
Sent: Friday, February 24, 2017 10:53 AM
To: Paine, Fred; Ferris, Gerald Jr; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Why not AGT?
Because of the potential CIAC for the reinforcement or the non firm operation?

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Paine, Fred
Sent: Friday, February 24, 2017 10:42 AM
To: Ferris, Gerald Jr; Dion, Thomas; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

I would think AGT funding would be out.

From: Ferris, Gerald Jr
Sent: Friday, February 24, 2017 10:41 AM
To: Paine, Fred; Dion, Thomas; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Yes we can give them an electric incentive, most likely they may not qualify under our AGT funding though? We will have to research that question on the AGT side.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Paine, Fred
Sent: Friday, February 24, 2017 10:12 AM
To: Dion, Thomas; Ferris, Gerald Jr; Mirabile, Gerald J.
Cc: Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Tom,

Could we supply firm gas with system reinforcements ?

Jed, can we claim savings on a dual fuel CHP ?

From: Dion, Thomas
Sent: Friday, February 24, 2017 10:10 AM
To: Ferris, Gerald Jr; Mirabile, Gerald J.
Cc: Paine, Fred; Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

OK, good start, we know where it is going!
How about the CFH input to the CHP?
CFH offset in the Power Plant?
Keep in mind, the Power Plant this is going to be located near, and displacing steam that is supplied by that plant, is NON FIRM.
When the weather hits approx. 20 degrees, we make them switch to alternate fuel oil.
Will the CHP be dual fuel?
If not, and we couldn't supply the existing power plant with firm gas, I do not know how we will supply a CHP with firm gas.
Can you get me some more answers?
Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Friday, February 24, 2017 9:49 AM
To: Dion, Thomas; Mirabile, Gerald J.
Cc: Paine, Fred; Afonso, Jacques R.
Subject: RE: Navy Newport 4500 KW CHP

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dion, Thomas
Sent: Wednesday, February 22, 2017 2:30 PM
To: Mirabile, Gerald J.
Cc: Paine, Fred; Ferris, Gerald Jr; Afonso, Jacques R.
Subject: Re: Navy Newport 4500 KW CHP

Jerry,
I need the exact location of the proposed CHP.
Also need CFH of new unit and CFH offset of new unit.
If it is offsetting load at the non firm plant we are in trouble.
The unit needs to offset firm load.
We could never supply the non firm plant with firm because of constraints on the island.
We will not be able to add a large load above the non firm.
Tom

Sent from my Mobile Device

On Feb 22, 2017, at 2:24 PM, Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com> wrote:

> The largest account is non firm on the base. There are a lot of things we will need to sort out. Tom. Let us know what is needed. ??
>
> Jacque, you should be aware of this as well. See email string.
>
> Sent from my iPhone
>
> On Feb 22, 2017, at 2:01 PM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:
>
> > I know it is a very weak spot and I believe we supplement the area with LNG. Please work with Jed to get Tom the incremental gas loads so he can run a study.
> >
> > ---
> >
> > **From:** Mirabile, Gerald J.
> > **Sent:** Wednesday, February 22, 2017 1:46 PM
> > **To:** Paine, Fred
> > **Cc:** Ferris, Gerald Jr; Dion, Thomas
> > **Subject:** Re: Navy Newport 4500 KW CHP
> >
> > Fred, do you know anything about navy base and Gas supply? Tom. Any input historically??
> >
> > Sent from my iPhone
> >
> > On Feb 22, 2017, at 7:59 AM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:
> >
> > > Gerry,
> > >
> > > Please get Tom Dion engaged. This is a very very difficult area to supply gas.
> > >
> > > ---
> > >
> > > **From:** Ferris, Gerald Jr
> > > **Sent:** Friday, February 17, 2017 8:44 AM
> > > **To:** 'naveenk@nkengineers.com'
> > > **Cc:** Paine, Fred
> > > **Subject:** Navy Newport 4500 KW CHP

Here is the application

https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/custom_ri_retrofit_form_final.pdf

Here is the long drawn out how to do a CHP project.

https://www.nationalgridus.com/media/pdfs/bus-ways-to-save/a-guide-to-submitting-chp-applications-for-incentives-in-ri-5202016-final.pdf

A quick summary sheet we just built for it too.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

<EE6574 CHP_RI.pdf>

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 2/28/2017 9:07:35 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
Attachments: Estimated natural gas loads 2-24-17.xlsx; Potential Plant Location.pdf; Site Dwg.docx

Here are the two scenarios as discussed on the CHP at the Navy Newport site.

I guess I would start with the worst case scenario the 70 Taurus or the 7 MW version and go from there.

Do you need anything else from me?

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, February 28, 2017 2:00 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Greg Hester
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Jed – sorry for the delay. Let me know if this helps with the gas demand issue. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, February 24, 2017 7:18 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Naveen and Jim,

Please find the attached information for your use. These are rough estimates of current and proposed natural gas usage for the boilers at 7CC and for the turbine/duct burner for each option. I have also included the location drawing we provided during the feasibility study phase.

Have a great Friday.

Regards,

Gregory S. Hester, PE LEED AP

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Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Thursday, February 23, 2017 at 10:06 AM
To: Gregory Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>, Tim Ryan <tim.ryan@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Greg and Naveen,

Yes, that would be most helpful. Thank you.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Thursday, February 23, 2017 6:34 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Good morning,

I can help provide this information but won't have much time to do so until tomorrow. I can provide rough estimates of natural gas usage and peak demand.

Regards,

Gregory S. Hester, PE LEED AP

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31-33 North Main Street – Unit 31A
Marlborough, CT 06447

860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Wednesday, February 22, 2017 at 2:53 PM
To: naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>, Tim Ryan <tim.ryan@bqenergy.com>, Gregory Hester <greg.hester@ebdengineering.com>
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Naveen – just spoke to Jed. He is looking for the amount of gas we will need. Says there is restrictions of gas delivery to the base. So let's start with the Taurus 70.can we estimate net increase in gas … is there a peak demand that we would need to address…do we net off demand against any of the boilers (or other consumers?) on the base…etc.

Maybe the gozinza-gozouta diagram would show this pretty clearly.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Wednesday, February 22, 2017 2:35 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Here is my email address

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, February 09, 2017 8:23 AM

To: Ferris, Gerald Jr
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Jed – Sorry about the text – maybe I sent it to your land line (or the wrong person!). Can we do 11:30? I have a customer call at 11AM. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Thursday, February 9, 2017 7:59 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>; Gari, Nicholae <Nicholae.Gari@nationalgrid.com>; Mike Ruppert <mruppert@jemengineer.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Paul Curran <paulcurran57@outlook.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Can we plan a call today at 11? I did receive your call yesterday but did not receive any text.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Wednesday, February 08, 2017 8:50 PM
To: Ferris, Gerald Jr
Cc: Michael McNulty; Gari, Nicholae; Mike Ruppert; Kennedy, John C.; Paul Curran
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Hello Jed. I left a VM and sent a text. Please give me a call and we can discuss the Naval Station Newport CHP situation. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Saturday, January 28, 2017 6:13 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>; Gari, Nicholae <Nicholae.Gari@nationalgrid.com>; Mike Ruppert <mruppert@jemengineer.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Paul Curran <paulcurran57@outlook.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Hi Jim,

I will give you a call monday morning if possible.

Thanks

Jed

On Jan 27, 2017, at 3:28 PM, Jim Falsetti <jim.falsetti@bqenergy.com> wrote:

> Fyi, I left messages earlier this week for both John and Jed. It would be great to connect with them next week. Best,
>
> Jim Falsetti BQENERGY.COM Ph/Text
> 203-512-7446
> Sent from my Windows 10 phone (please excuse typing errors)
>
> ---
>
> **From:** Michael McNulty
> **Sent:** Friday, January 27, 2017 3:20 PM
> **To:** Gari, Nicholae
> **Cc:** Mike Ruppert; Kennedy, John C.; Ferris, Gerald Jr; Jim Falsetti; Paul Curran
> **Subject:** Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
>
> Thank you Gari. I'll speak with our engineer on what day works for him, and we'll put something on the calendar for one afternoon next week.
>
> Michael McNulty
> Senior Project Manager
> BQ Energy, llc.
>
> **www.bqenergy.com**
> mobile: 845-702-9280
> email: michael.mcnulty@bqenergy.com
> 47 S. Hamilton St.
> Poughkeepsie, NY 12601
>
> ---
>
> **From:** Nicholae Gari <Nicholae.Gari@nationalgrid.com>
> **Date:** Friday, January 27, 2017 at 3:19 PM
> **To:** Michael McNulty <michael.mcnulty@bqenergy.com>
> **Cc:** Mike Ruppert <mruppert@jemengineer.com>, John Kennedy <john.kennedy@nationalgrid.com>, "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
> **Subject:** RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
>
> Michael,
>
> John Kennedy is the Manager of Customer Energy Integration Department. I copied him on this email.
> I also copied Gerald Ferris, his the NE CHP Program Manager.
>
> I would be happy to talk to you regarding the revisions requested.
> Next week I am available every day in the afternoon.
> Please let me know what time would be ok for you to schedule a call next week.

Thank you,

Nicolae Gari
Contractor Engineer
Distributed Generation Engineering Support
Customer Energy Integration
nationalgrid
40 Sylvan Rd (E1.494)
Waltham, MA 02451-1120
nicholae.gari@nationalgrid.com
(781)907-2018
Please select the appropriate link below for the latest information on:
Interconnection Standards -MA,RI, NY

From: Michael McNulty [mailto:michael.mcnulty@bqenergy.com]
Sent: Wednesday, January 25, 2017 10:59 AM
To: Gari, Nicholae
Cc: Mike Ruppert
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Gari,

Can we get a phone call with you, myself, and our PE on the calendar so we can discuss the requested revisions? We're not 100% sure on some of the requests.

On a side note, we're working on a CHP plant for the navy base at Newport and need to get in touch with John Kennedy at National Grid. Do you have any dealings with him?

Michael McNulty
Senior Project Manager
BQ Energy, llc.

www.bqenergy.com
mobile: 845-702-9280
email: michael.mcnulty@bqenergy.com
47 S. Hamilton St.
Poughkeepsie, NY 12601

From: Nicholae Gari <Nicholae.Gari@nationalgrid.com>
Date: Monday, January 23, 2017 at 3:53 PM
To: Michael McNulty <michael.mcnulty@bqenergy.com>
Cc: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Michael,

The revised drawings submission for 9,972 kW PV, RI-23183449 application is not satisfactory at this time.

The attached revised drawings must be revised again and resubmitted reflecting the following additional requirements:

For the one line diagram:

- The internal relays of any UL 1741 listed inverter based proposed generator are considered the primary generator protection. According to ESB 756 D, section 5.7 '*Protective Device Equipment'* and more particular to section 5.7.10.1.1 '*Inverter-based PV Generator Equal or Above 500kW*' all inverter based UL listed distributed generation proposals with system design capacity of 500kW and larger will require installation of a customer owned redundant relay design as backup protection. The additional protection design required must be installed on the customer side of Point of Common Coupling (PCC) and must include at minimum the following active redundant relay elements: 27 (under voltage), 59 (over voltage), 81O/U (under/over frequency) and 51C (voltage controlled overcurrent for both phase and ground). The preliminary redundant relay settings must be tabulated on the revised one line diagram. Besides the requirements mentioned, the redundant relay design proposed must provide a DC powered backup supply from a battery and battery charger system with associated failsafe controls.
- The proposed utility EPS available is effectively grounded which requires an effectively grounded source. In order to comply with the effective grounding requirement, the proposed PV system, using Grd'd Wye – Grd'd Wye interface transformers, requires the installation of grounding transformers on the primary OR on the secondary transformer side. The grounding transformer must be labeled accordingly reflecting the following ratings: transformer type, kVA rating, winding configurations, transformer voltages, transformer impedance value, and X/R ratio. Please refer to the below sections from ESB 756D for additional information.

  (For additional information please refer to the following sections from ESB 756D:
  5.3.4 'Neutral Stabilization and Grounding'
  5.5.3 'Primary and High Voltage Served by DG customers'
  5.5.3.1 'Effectively Grounded, Four-wire Multi-grounded 3-phase Wye EPS')

- The Point of Common Coupling (PCC) for this application is the load side terminals of the utility meter which is the demarcation point between the customer owned equipment and utility equipment. Each electrical equipment installed on utility side of PCC must be installed on a separate pole.
- According to ESB 756 D, section 5.6 'Manual Generator Disconnect Switch', all generators proposed on utility EPS require installation of a Customer-owned Manual Generator Disconnecting Means (gang operated, utility lockable, 24/7 accessible, groundable). This customer owned device for utility use must be able to electrically isolate the entire customer's generation facility from the utility EPS. For this primary metered proposal, the generator disconnect must be installed at PCC location, on the customer side of PCC. Please refer to 'EXHIBIT 7: Typical Overhead Primary Service Configuration for Large DG Installations Greater Than or Equal To 1MW' drawing from ESB756D for typical primary metered overhead installations of this size.

<u>For the site plan</u>:

- All new utility and customer owned proposed poles reflected on the revised one line diagram must be identified on the revised site plan as well, along with all associated electrical equipment installed and with identification of Point of Common Coupling (PCC) and Point of Interconnection (POI) locations.

Please feel free to contact me back with any other question you may have.

Thank you,

Nicolae Gari
Contractor Engineer
Distributed Generation Engineering Support
Customer Energy Integration
nationalgrid
40 Sylvan Rd (E1.494)
Waltham, MA 02451-1120
nicholae.gari@nationalgrid.com
(781)907-2018
Please select the appropriate link below for the latest information on:
Interconnection Standards -MA,RI, NY

From: Michael McNulty [mailto:michael.mcnulty@bqenergy.com]
Sent: Friday, January 20, 2017 2:04 PM
To: Gari, Nicholae
Cc: Jim Falsetti
Subject: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines

Nicholae,

Thank you for your patience while we got these stamped. Attached you will find the three separate one lines for our projects on Burma Road. Please let us know if you see any problems.

Note: These only opened correctly when I used Adobe, not another PDF viewer.

Michael McNulty
Senior Project Manager
BQ Energy, llc.

www.bqenergy.com
mobile: 845-702-9280
email: michael.mcnulty@bqenergy.com
47 S. Hamilton St.
Poughkeepsie, NY 12601

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Natural Gas Impact of Combined Heat and Power Project at Naval Station Newport

Solar Mercury 50 Option

	Pre Combined Heat and Power Installation	Post Combined Heat
Month	Estimated Existing Natural Gas Usage at 7CC Boiler Plant (Therms)	Estimated Gas Turbine and Duct Burner Gas Usage (Therms)
January	411,655	575,179
February	424,988	593,705
March	377,109	582,049
April	241,303	412,779
May	36,805	342,342
June	0	318,028
July	0	174,898
August	0	319,258
September	0	313,590
October	84,228	334,725
November	225,583	430,555
December	254,052	465,446
Total	**2,055,724**	**4,862,554**

Notes: 1) Boiler gas usage post combined heat and power does not include gas usage to fire boilers to ke condition if steam mud drum heaters are not used. This will be vetted during the design phase of the pro

2) This model assume 8273 hours of run time for the system

Solar Taurus 70 Option

	Pre Combined Heat and Power Installation	Post Combined Heat
Month	Estimated Existing Natural Gas Usage at 7CC Boiler Plant (Therms)	Estimated Gas Turbine and Duct Burner Gas Usage (Therms)
January	411,655	722,991
February	424,988	749,967
March	377,109	734,505
April	241,303	580,760
May	36,805	621,041
June	0	590,477
July	0	325,287
August	0	593,888
September	0	582,740

October	84,228	584,686
November	225,583	616,176
December	254,052	644,155
Total	**2,055,724**	**7,346,673**

Notes: 1) Boiler gas usage post combined heat and power does not include gas usage to fire boilers to ke
2) This model assume 8273 hours of run time for the system

and Power Installation
Estimated Natural Gas Usage for Boilers at 7CC Boiler Plant (Therms)
29,872
16,395
3,199
20,372
0
0
0
0
0
0
0
37
69,875

ep them in stand-by
ject

and Power Installation
Estimated Natural Gas Usage for Boilers at 7CC Boiler Plant (Therms)
24,004
21
137
20,238
0
0
0
0
0

0
0
0
44,401

ep them in stand-by

POTENTIAL PLANT LOCATION

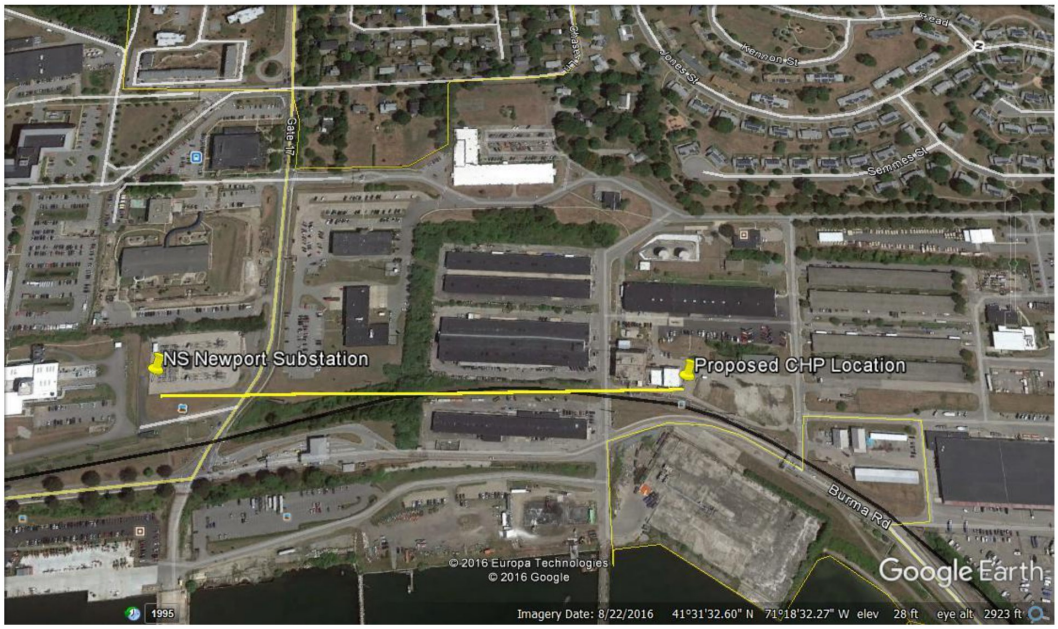

Figure H-1: Layout of Onsite CHP Generation Interconnection

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 3/1/2017 2:46:04 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

I do not remember seeing a cut sheet.
When I pull up the cut sheet on the internet I get some pretty interesting numbers.
Lbm/hr, kg/hr.
Try converting this stuff!
It also does not include the duct burner.
I know we have "rule of thumb" numbers, but I would like to start seeing these large projects in writing.

What is the maximum hourly consumption for the CHP at the Navy in MMBTU/hr or Dth/hr?

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Wednesday, March 01, 2017 9:34 AM
To: Dion, Thomas; Paine, Fred; Mirabile, Gerald J.
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

I thought I sent you the cutsheet did it not have those items?

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dion, Thomas
Sent: Wednesday, March 01, 2017 9:03 AM
To: Ferris, Gerald Jr; Paine, Fred; Mirabile, Gerald J.
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Just need the gas input and minimum gas pressure for the Taurus 70.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Tuesday, February 28, 2017 4:08 PM
To: Dion, Thomas; Paine, Fred; Mirabile, Gerald J.
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Here are the two scenarios as discussed on the CHP at the Navy Newport site.

I guess I would start with the worst case scenario the 70 Taurus or the 7 MW version and go from there.

Do you need anything else from me?

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, February 28, 2017 2:00 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Greg Hester
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Jed – sorry for the delay. Let me know if this helps with the gas demand issue. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, February 24, 2017 7:18 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Naveen and Jim,

Please find the attached information for your use. These are rough estimates of current and proposed natural gas usage for the boilers at 7CC and for the turbine/duct burner for each option. I have also included the location drawing we provided during the feasibility study phase.

Have a great Friday.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design
31-33 North Main Street – Unit 31A

Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Thursday, February 23, 2017 at 10:06 AM
To: Gregory Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>, Tim Ryan <tim.ryan@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Greg and Naveen,

Yes, that would be most helpful. Thank you.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Thursday, February 23, 2017 6:34 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Good morning,

I can help provide this information but won't have much time to do so until tomorrow. I can provide rough estimates of natural gas usage and peak demand.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design

31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Wednesday, February 22, 2017 at 2:53 PM
To: naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>, Tim Ryan <tim.ryan@bqenergy.com>, Gregory Hester <greg.hester@ebdengineering.com>
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Naveen – just spoke to Jed. He is looking for the amount of gas we will need. Says there is restrictions of gas delivery to the base. So let's start with the Taurus 70.can we estimate net increase in gas … is there a peak demand that we would need to address…do we net off demand against any of the boilers (or other consumers?) on the base…etc.

Maybe the gozinza-gozouta diagram would show this pretty clearly.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Wednesday, February 22, 2017 2:35 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Here is my email address

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, February 09, 2017 8:23 AM
To: Ferris, Gerald Jr
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Jed – Sorry about the text – maybe I sent it to your land line (or the wrong person!). Can we do 11:30? I have a customer call at 11AM. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Thursday, February 9, 2017 7:59 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>; Gari, Nicholae <Nicholae.Gari@nationalgrid.com>; Mike Ruppert <mruppert@jemengineer.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Paul Curran <paulcurran57@outlook.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Can we plan a call today at 11? I did receive your call yesterday but did not receive any text.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Wednesday, February 08, 2017 8:50 PM
To: Ferris, Gerald Jr
Cc: Michael McNulty; Gari, Nicholae; Mike Ruppert; Kennedy, John C.; Paul Curran
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Hello Jed. I left a VM and sent a text. Please give me a call and we can discuss the Naval Station Newport CHP situation. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Saturday, January 28, 2017 6:13 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>; Gari, Nicholae <Nicholae.Gari@nationalgrid.com>; Mike Ruppert <mruppert@jemengineer.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Paul Curran <paulcurran57@outlook.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Hi Jim,

I will give you a call monday morning if possible.

Thanks

Jed

On Jan 27, 2017, at 3:28 PM, Jim Falsetti <jim.falsetti@bqenergy.com> wrote:

> Fyi, I left messages earlier this week for both John and Jed. It would be great to connect with them next week. Best,
>
> Jim Falsetti BQENERGY.COM Ph/Text
> 203-512-7446
> Sent from my Windows 10 phone (please excuse typing errors)
>
> ---
>
> **From:** Michael McNulty
> **Sent:** Friday, January 27, 2017 3:20 PM
> **To:** Gari, Nicholae
> **Cc:** Mike Ruppert; Kennedy, John C.; Ferris, Gerald Jr; Jim Falsetti; Paul Curran
> **Subject:** Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
>
> Thank you Gari. I'll speak with our engineer on what day works for him, and we'll put something on the calendar for one afternoon next week.
>
> Michael McNulty
> Senior Project Manager
> BQ Energy, llc.
>
> **www.bqenergy.com**
> mobile: 845-702-9280
> email: michael.mcnulty@bqenergy.com
> 47 S. Hamilton St.
> Poughkeepsie, NY 12601
>
> ---
>
> **From:** Nicholae Gari <Nicholae.Gari@nationalgrid.com>
> **Date:** Friday, January 27, 2017 at 3:19 PM
> **To:** Michael McNulty <michael.mcnulty@bqenergy.com>
> **Cc:** Mike Ruppert <mruppert@jemengineer.com>, John Kennedy <john.kennedy@nationalgrid.com>, "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
> **Subject:** RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
>
> Michael,
>
> John Kennedy is the Manager of Customer Energy Integration Department. I copied him on this email.
> I also copied Gerald Ferris, his the NE CHP Program Manager.
>
> I would be happy to talk to you regarding the revisions requested.
> Next week I am available every day in the afternoon.
> Please let me know what time would be ok for you to schedule a call next week.
>
> Thank you,

Nicolae Gari
Contractor Engineer
Distributed Generation Engineering Support
Customer Energy Integration
nationalgrid
40 Sylvan Rd (E1.494)
Waltham, MA 02451-1120
nicholae.gari@nationalgrid.com
(781)907-2018
Please select the appropriate link below for the latest information on:
Interconnection Standards -MA,RI, NY

From: Michael McNulty [mailto:michael.mcnulty@bqenergy.com]
Sent: Wednesday, January 25, 2017 10:59 AM
To: Gari, Nicholae
Cc: Mike Ruppert
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Gari,

Can we get a phone call with you, myself, and our PE on the calendar so we can discuss the requested revisions? We're not 100% sure on some of the requests.

On a side note, we're working on a CHP plant for the navy base at Newport and need to get in touch with John Kennedy at National Grid. Do you have any dealings with him?

Michael McNulty
Senior Project Manager
BQ Energy, llc.

www.bqenergy.com
mobile: 845-702-9280
email: michael.mcnulty@bqenergy.com
47 S. Hamilton St.
Poughkeepsie, NY 12601

From: Nicholae Gari <Nicholae.Gari@nationalgrid.com>
Date: Monday, January 23, 2017 at 3:53 PM
To: Michael McNulty <michael.mcnulty@bqenergy.com>
Cc: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Michael,

The revised drawings submission for 9,972 kW PV, RI-23183449 application is not satisfactory at this time.

The attached revised drawings must be revised again and resubmitted reflecting the following additional requirements:

For the one line diagram:

- The internal relays of any UL 1741 listed inverter based proposed generator are considered the primary generator protection. According to ESB 756 D, section 5.7 '*Protective Device Equipment*' and more particular to section 5.7.10.1.1 '*Inverter-based PV Generator Equal or*

Above 500kW' all inverter based UL listed distributed generation proposals with system design capacity of 500kW and larger will require installation of a customer owned redundant relay design as backup protection. The additional protection design required must be installed on the customer side of Point of Common Coupling (PCC) and must include at minimum the following active redundant relay elements: 27 (under voltage), 59 (over voltage), 81O/U (under/over frequency) and 51C (voltage controlled overcurrent for both phase and ground). The preliminary redundant relay settings must be tabulated on the revised one line diagram. Besides the requirements mentioned, the redundant relay design proposed must provide a DC powered backup supply from a battery and battery charger system with associated failsafe controls.

- The proposed utility EPS available is effectively grounded which requires an effectively grounded source. In order to comply with the effective grounding requirement, the proposed PV system, using Grd'd Wye – Grd'd Wye interface transformers, requires the installation of grounding transformers on the primary OR on the secondary transformer side. The grounding transformer must be labeled accordingly reflecting the following ratings: transformer type, kVA rating, winding configurations, transformer voltages, transformer impedance value, and X/R ratio. Please refer to the below sections from ESB 756D for additional information.

  (For additional information please refer to the following sections from ESB 756D:
  5.3.4 'Neutral Stabilization and Grounding'
  5.5.3 'Primary and High Voltage Served by DG customers'
  5.5.3.1 'Effectively Grounded, Four-wire Multi-grounded 3-phase Wye EPS')

- The Point of Common Coupling (PCC) for this application is the load side terminals of the utility meter which is the demarcation point between the customer owned equipment and utility equipment. Each electrical equipment installed on utility side of PCC must be installed on a separate pole.
- According to ESB 756 D, section 5.6 'Manual Generator Disconnect Switch', all generators proposed on utility EPS require installation of a Customer-owned Manual Generator Disconnecting Means (gang operated, utility lockable, 24/7 accessible, groundable). This customer owned device for utility use must be able to electrically isolate the entire customer's generation facility from the utility EPS. For this primary metered proposal, the generator disconnect must be installed at PCC location, on the customer side of PCC. Please refer to 'EXHIBIT 7: Typical Overhead Primary Service Configuration for Large DG Installations Greater Than or Equal To 1MW' drawing from ESB756D for typical primary metered overhead installations of this size.

For the site plan:

- All new utility and customer owned proposed poles reflected on the revised one line diagram must be identified on the revised site plan as well, along with all associated electrical equipment installed and with identification of Point of Common Coupling (PCC) and Point of Interconnection (POI) locations.

Please feel free to contact me back with any other question you may have.

Thank you,

Nicolae Gari
Contractor Engineer
Distributed Generation Engineering Support
Customer Energy Integration

nationalgrid
40 Sylvan Rd (E1.494)
Waltham, MA 02451-1120
nicholae.gari@nationalgrid.com
(781)907-2018
Please select the appropriate link below for the latest information on:
Interconnection Standards -MA,RI, NY

From: Michael McNulty [mailto:michael.mcnulty@bqenergy.com]
Sent: Friday, January 20, 2017 2:04 PM
To: Gari, Nicholae
Cc: Jim Falsetti
Subject: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines

Nicholae,

Thank you for your patience while we got these stamped. Attached you will find the three separate one lines for our projects on Burma Road. Please let us know if you see any problems.

Note: These only opened correctly when I used Adobe, not another PDF viewer.

Michael McNulty
Senior Project Manager
BQ Energy, llc.

www.bqenergy.com
mobile: 845-702-9280
email: michael.mcnulty@bqenergy.com
47 S. Hamilton St.
Poughkeepsie, NY 12601

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(accessed by clicking on the appropriate link)

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 3/2/2017 1:30:59 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Paul Curran [paul.curran@bqenergy.com]; naveen kapur [naveenk@nkengineers.com]; Greg Hester [greg.hester@ebdengineering.com]
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Any chance you have this?

Does this Turbine have duct burners? If so, how much could they consume? Rating therms/hr?

What is the maximum hourly consumption for the CHP at the Navy in MMBTU/hr or Dth/hr?

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, February 28, 2017 2:00 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Greg Hester
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Jed – sorry for the delay. Let me know if this helps with the gas demand issue. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, February 24, 2017 7:18 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Naveen and Jim,

Please find the attached information for your use. These are rough estimates of current and proposed natural gas usage for the boilers at 7CC and for the turbine/duct burner for each option. I have also included the location drawing we provided during the feasibility study phase.

Have a great Friday.

Regards,

Gregory S. Hester, PE LEED AP

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Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Thursday, February 23, 2017 at 10:06 AM
To: Gregory Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>, Tim Ryan <tim.ryan@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Greg and Naveen,

Yes, that would be most helpful. Thank you.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Thursday, February 23, 2017 6:34 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Good morning,

I can help provide this information but won't have much time to do so until tomorrow. I can provide rough estimates of natural gas usage and peak demand.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
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860-883-6486 C
Greg.Hester@EBDEngineering.com
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From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Wednesday, February 22, 2017 at 2:53 PM
To: naveen kapur <naveenk@nkengineers.com>
Cc: Paul Curran <paul.curran@bqenergy.com>, Tim Ryan <tim.ryan@bqenergy.com>, Gregory Hester <greg.hester@ebdengineering.com>
Subject: FW: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Naveen – just spoke to Jed. He is looking for the amount of gas we will need. Says there is restrictions of gas delivery to the base. So let's start with the Taurus 70.can we estimate net increase in gas … is there a peak demand that we would need to address…do we net off demand against any of the boilers (or other consumers?) on the base…etc.

Maybe the gozinza-gozouta diagram would show this pretty clearly.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Wednesday, February 22, 2017 2:35 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Here is my email address

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work

401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, February 09, 2017 8:23 AM
To: Ferris, Gerald Jr
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Jed – Sorry about the text – maybe I sent it to your land line (or the wrong person!). Can we do 11:30? I have a customer call at 11AM. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Thursday, February 9, 2017 7:59 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>; Gari, Nicholae <Nicholae.Gari@nationalgrid.com>; Mike Ruppert <mruppert@jemengineer.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Paul Curran <paulcurran57@outlook.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Can we plan a call today at 11? I did receive your call yesterday but did not receive any text.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Wednesday, February 08, 2017 8:50 PM
To: Ferris, Gerald Jr
Cc: Michael McNulty; Gari, Nicholae; Mike Ruppert; Kennedy, John C.; Paul Curran
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Hello Jed. I left a VM and sent a text. Please give me a call and we can discuss the Naval Station Newport CHP situation. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Saturday, January 28, 2017 6:13 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>; Gari, Nicholae <Nicholae.Gari@nationalgrid.com>; Mike Ruppert <mruppert@jemengineer.com>; Kennedy, John C. <John.Kennedy@nationalgrid.com>; Paul Curran

<paulcurran57@outlook.com>
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Hi Jim,

I will give you a call monday morning if possible.

Thanks

Jed

On Jan 27, 2017, at 3:28 PM, Jim Falsetti <jim.falsetti@bqenergy.com> wrote:

> Fyi, I left messages earlier this week for both John and Jed. It would be great to connect with them next week. Best,
>
> Jim Falsetti BQENERGY.COM Ph/Text
> 203-512-7446
> Sent from my Windows 10 phone (please excuse typing errors)
>
> ---
>
> **From:** Michael McNulty
> **Sent:** Friday, January 27, 2017 3:20 PM
> **To:** Gari, Nicholae
> **Cc:** Mike Ruppert; Kennedy, John C.; Ferris, Gerald Jr; Jim Falsetti; Paul Curran
> **Subject:** Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
>
> Thank you Gari. I'll speak with our engineer on what day works for him, and we'll put something on the calendar for one afternoon next week.
>
> Michael McNulty
> Senior Project Manager
> BQ Energy, llc.
>
> **www.bqenergy.com**
> mobile: 845-702-9280
> email: michael.mcnulty@bqenergy.com
> 47 S. Hamilton St.
> Poughkeepsie, NY 12601
>
> ---
>
> **From:** Nicholae Gari <Nicholae.Gari@nationalgrid.com>
> **Date:** Friday, January 27, 2017 at 3:19 PM
> **To:** Michael McNulty <michael.mcnulty@bqenergy.com>
> **Cc:** Mike Ruppert <mruppert@jemengineer.com>, John Kennedy <john.kennedy@nationalgrid.com>, "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
> **Subject:** RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449
>
> Michael,
>
> John Kennedy is the Manager of Customer Energy Integration Department. I copied him on this email. I also copied Gerald Ferris, his the NE CHP Program Manager.

I would be happy to talk to you regarding the revisions requested.
Next week I am available every day in the afternoon.
Please let me know what time would be ok for you to schedule a call next week.

Thank you,

Nicolae Gari
Contractor Engineer
Distributed Generation Engineering Support
Customer Energy Integration
nationalgrid
40 Sylvan Rd (E1.494)
Waltham, MA 02451-1120
nicholae.gari@nationalgrid.com
(781)907-2018
Please select the appropriate link below for the latest information on:
Interconnection Standards -MA,RI, NY

From: Michael McNulty [mailto:michael.mcnulty@bqenergy.com]
Sent: Wednesday, January 25, 2017 10:59 AM
To: Gari, Nicholae
Cc: Mike Ruppert
Subject: Re: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Gari,

Can we get a phone call with you, myself, and our PE on the calendar so we can discuss the requested revisions? We're not 100% sure on some of the requests.

On a side note, we're working on a CHP plant for the navy base at Newport and need to get in touch with John Kennedy at National Grid. Do you have any dealings with him?

Michael McNulty
Senior Project Manager
BQ Energy, llc.

www.bqenergy.com
mobile: 845-702-9280
email: michael.mcnulty@bqenergy.com
47 S. Hamilton St.
Poughkeepsie, NY 12601

From: Nicholae Gari <Nicholae.Gari@nationalgrid.com>
Date: Monday, January 23, 2017 at 3:53 PM
To: Michael McNulty <michael.mcnulty@bqenergy.com>
Cc: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines_RI-23183449

Michael,

The revised drawings submission for 9,972 kW PV, RI-23183449 application is not satisfactory at this time.

The attached revised drawings must be revised again and resubmitted reflecting the following additional requirements:

For the one line diagram:

- The internal relays of any UL 1741 listed inverter based proposed generator are considered the primary generator protection. According to ESB 756 D, section 5.7 '*Protective Device Equipment'* and more particular to section 5.7.10.1.1 '*Inverter-based PV Generator Equal or Above 500kW*' all inverter based UL listed distributed generation proposals with system design capacity of 500kW and larger will require installation of a customer owned redundant relay design as backup protection. The additional protection design required must be installed on the customer side of Point of Common Coupling (PCC) and must include at minimum the following active redundant relay elements: 27 (under voltage), 59 (over voltage), 81O/U (under/over frequency) and 51C (voltage controlled overcurrent for both phase and ground). The preliminary redundant relay settings must be tabulated on the revised one line diagram. Besides the requirements mentioned, the redundant relay design proposed must provide a DC powered backup supply from a battery and battery charger system with associated failsafe controls.
- The proposed utility EPS available is effectively grounded which requires an effectively grounded source. In order to comply with the effective grounding requirement, the proposed PV system, using Grd'd Wye – Grd'd Wye interface transformers, requires the installation of grounding transformers on the primary OR on the secondary transformer side. The grounding transformer must be labeled accordingly reflecting the following ratings: transformer type, kVA rating, winding configurations, transformer voltages, transformer impedance value, and X/R ratio. Please refer to the below sections from ESB 756D for additional information.

  (For additional information please refer to the following sections from ESB 756D:
  5.3.4 'Neutral Stabilization and Grounding'
  5.5.3 'Primary and High Voltage Served by DG customers'
  5.5.3.1 'Effectively Grounded, Four-wire Multi-grounded 3-phase Wye EPS')

- The Point of Common Coupling (PCC) for this application is the load side terminals of the utility meter which is the demarcation point between the customer owned equipment and utility equipment. Each electrical equipment installed on utility side of PCC must be installed on a separate pole.
- According to ESB 756 D, section 5.6 'Manual Generator Disconnect Switch', all generators proposed on utility EPS require installation of a Customer-owned Manual Generator Disconnecting Means (gang operated, utility lockable, 24/7 accessible, groundable). This customer owned device for utility use must be able to electrically isolate the entire customer's generation facility from the utility EPS. For this primary metered proposal, the generator disconnect must be installed at PCC location, on the customer side of PCC. Please refer to 'EXHIBIT 7: Typical Overhead Primary Service Configuration for Large DG Installations Greater Than or Equal To 1MW' drawing from ESB756D for typical primary metered overhead installations of this size.

For the site plan:

- All new utility and customer owned proposed poles reflected on the revised one line diagram must be identified on the revised site plan as well, along with all associated electrical equipment installed and with identification of Point of Common Coupling (PCC) and Point of Interconnection (POI) locations.

Please feel free to contact me back with any other question you may have.

Thank you,

Nicolae Gari
Contractor Engineer
Distributed Generation Engineering Support
Customer Energy Integration
nationalgrid
40 Sylvan Rd (E1.494)
Waltham, MA 02451-1120
nicholae.gari@nationalgrid.com
(781)907-2018
Please select the appropriate link below for the latest information on:
Interconnection Standards -MA,RI, NY

From: Michael McNulty [mailto:michael.mcnulty@bqenergy.com]
Sent: Friday, January 20, 2017 2:04 PM
To: Gari, Nicholae
Cc: Jim Falsetti
Subject: EXT || BQ Energy - Newport (Solar Breakers) - Stamped Onelines

Nicholae,

Thank you for your patience while we got these stamped. Attached you will find the three separate one lines for our projects on Burma Road. Please let us know if you see any problems.

Note: These only opened correctly when I used Adobe, not another PDF viewer.

Michael McNulty
Senior Project Manager
BQ Energy, llc.

www.bqenergy.com
mobile: 845-702-9280
email: michael.mcnulty@bqenergy.com
47 S. Hamilton St.
Poughkeepsie, NY 12601

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For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 3/8/2017 3:47:41 PM
To: Paine, Fred [fred.paine@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
CC: Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
Subject: RE: EXT || FW: Gas Consumption for the Taurus 70

Fred,
For you, anytime!

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Paine, Fred
Sent: Wednesday, March 08, 2017 10:39 AM
To: Dion, Thomas; Ferris, Gerald Jr
Cc: Mirabile, Gerald J.
Subject: RE: EXT || FW: Gas Consumption for the Taurus 70

Tom,

We appreciate you staying on top of this project.

From: Dion, Thomas
Sent: Wednesday, March 08, 2017 8:01 AM
To: Ferris, Gerald Jr
Cc: Paine, Fred; Mirabile, Gerald J.
Subject: RE: EXT || FW: Gas Consumption for the Taurus 70

Jed,
That is exactly what I was looking for.
I submitted the Navy project last week with 157 DTH/hr.
I spoke to Mark D about Toray #1 Turbine Project and estimated from that.
120 DTH for turbine and 37 for duct burner.
I will update the numbers this morning and re-submit.
Now we wait!
Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Tuesday, March 07, 2017 3:47 PM
To: Dion, Thomas
Cc: Paine, Fred; Mirabile, Gerald J.
Subject: FW: EXT || FW: Gas Consumption for the Taurus 70

Newport Navy CHP for Duct burners and CHP shown below.

Hope this helps.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed – sorry for the delay – attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navy's current steam boiler consumption. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

An estimate of Taurus 70 performance is shown below. I would think for the gas company they are most concerned with maximum gas requirements during the winter when their system is the most stressed. The maximum capacity of the turbine at 0 degrees OAT is shown below (data from Solar Turbines) and the fuel consumption on a lower heating value basis is ~84.21 mmbtu/hr.

As far as the duct burner, we were looking at duct firing ad additional 40 klb/hr of steam with the Taurus 70. This equates to an additional ~ 40-41 mmbtu/hr fuel input on an LHV basis.

Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Jim, please make sure that NGRID does not add the existing boiler gas consumption to the CHP gas consumption. This is because when the turbine is operating, in most instances, the boilers will not be required to operate. The Navy may however put one, or more, of their boilers in hot standy, which will increase the gas consumption slightly

Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 3/8/2017 1:24:51 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; Mirabile, Gerald J. [gerald.mirabile@nationalgrid.com]
Subject: RE: EXT || FW: Gas Consumption for the Taurus 70

No problem, at least the ping pong ball is on the engineering side of the table.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dion, Thomas
Sent: Wednesday, March 08, 2017 8:01 AM
To: Ferris, Gerald Jr
Cc: Paine, Fred; Mirabile, Gerald J.
Subject: RE: EXT || FW: Gas Consumption for the Taurus 70

Jed,
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Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Ferris, Gerald Jr
Sent: Tuesday, March 07, 2017 3:47 PM
To: Dion, Thomas
Cc: Paine, Fred; Mirabile, Gerald J.
Subject: FW: EXT || FW: Gas Consumption for the Taurus 70

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Hope this helps.

Gerald(Jed) Ferris

NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed – sorry for the delay – attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navy's current steam boiler consumption. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

An estimate of Taurus 70 performance is shown below. I would think for the gas company they are most concerned with maximum gas requirements during the winter when their system is the most stressed. The maximum capacity of the turbine at 0 degrees OAT is shown below (data from Solar Turbines) and the fuel consumption on a lower heating value basis is ~84.21 mmbtu/hr.

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Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Jim, please make sure that NGRID does not add the existing boiler gas consumption to the CHP gas consumption. This is because when the turbine is operating, in most instances, the boilers will not be required to operate. The Navy may however put one, or more, of their boilers in hot standy, which will increase the gas consumption slightly

Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 3/23/2017 3:00:44 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: 2016 2017 gas projects

They will prob go oil - Jed says that is fine, because it is electric EE

From: Dunham, Jeffrey B.
Sent: Thursday, March 23, 2017 11:00 AM
To: Paine, Fred
Subject: RE: 2016 2017 gas projects

Tom just informed me that we cannot supply the Navy with the gas for the CHP

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Paine, Fred
Sent: Thursday, March 23, 2017 10:28 AM
To: Dunham, Jeffrey B.
Subject: RE: 2016 2017 gas projects

I know it will be challenging for all. I still would bet money on you achieving it and making money. Aspen CHP may come through, and I think I have to reassign you to the Navy CHP. Right now, the only 2 people selling the Navy CHP are myself and Jed.....

From: Dunham, Jeffrey B.
Sent: Thursday, March 23, 2017 10:25 AM
To: Paine, Fred
Subject: Re: 2016 2017 gas projects

Thanks I appreciate the adjustment
I gotta tell you that meeting yesterday really took the wind out of my sails
I don't think I will obtain the 10k units this year you expect me to and even if I do I would still need to get to 11k next year just to make goal
I think David took a well oiled machine and broke it

On Mar 23, 2017, at 10:19 AM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:

Jeff,

I have reduced you goal to 406,000 down from 432,000. I know you would like me to reduce it more, but keep in mind that Wendy who has the next highest gas goal 378,000, her number represents 105% of this year's sales for her. I will just say Dave feels strongly about the 1.05% methodology.

From: Dunham, Jeffrey B.
Sent: Wednesday, March 22, 2017 12:46 PM
To: Paine, Fred
Subject: 2016 2017 gas projects

Fred
There were several projects that were out of the ordinary to all happen in one year. Lifespan is wrapping up this year so we will not see those kind of savings moving forward. VA has not done steam tramps in the past.
Admiral RTO 150K therms
Lifespan SEMP 195K therms
VA hosp steam Traps 38K therms
CareNE insulation 100K therms
Hudson insulation 57k therms
Hopefully this information can weigh in for reconsideration on goal setting
Thanks
Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 3/31/2017 7:33:31 PM
To: Flynn, Brandon [brandon.flynn@nationalgrid.com]
Subject: RE: Job Design - Engineering Update

Thanks

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

-----Original Message-----
From: Flynn, Brandon
Sent: Friday, March 31, 2017 3:30 PM
To: Dion, Thomas
Subject: RE: Job Design - Engineering Update

Tom,

This is the same reinforcement. I meant to combine them into one note. It is an explanation of note 1.

Brandon

-----Original Message-----
From: Dion, Thomas
Sent: Friday, March 31, 2017 3:28 PM
To: Flynn, Brandon
Subject: FW: Job Design - Engineering Update

Brandon,
Is
2) Growth Reinforcement: There is a 12 in WS 99psig stub on the intersection of Green End Ave @ Compton View Dr which will be extended with 12 in WS 99psig approx. 3,000 ft parallel with the existing 8 in WS 99psig on Green End Ave to the 12 in WS 99psig stub on the corner of Green End Ave and Aquidneck Ave.
an explanation of 1) ???
Or is this two different Growth Reinforcement's??????

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

-----Original Message-----
From: noreply@salesforce.com [mailto:noreply@salesforce.com] On Behalf Of Brandon Flynn
Sent: Friday, March 31, 2017 2:45 PM
To: Dion, Thomas
Subject: Job Design - Engineering Update

Engineering Approved GCR for Job Design:
JOB-00053762 for 0 SIMONPIETRI DR BLDG CHP.
https://na52.salesforce.com/a1Td0000007uare

Engineering Notes:
BF 3/31/2017
Gas Operations Engineering approves the proposed load of 126,000 CFH contingent upon:
1) Growth Reinforcement: Due to the integrity of the 99psig, 35psig, and LP systems in the surrounding locations of this request, the installation of approx. 3,000 ft of 12 in WS 99psig main on Green End Avenue in Middletown RI will be an adequate reinforcement keep all pressures above system minimum and allow the customer to achieve its desired gas capacity request.
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3) After this reinforcement is complete, the installation of up to 100 ft of 8 in WS 99psig service off of the existing 12 in WS 99psig main will be adequate to serve the Boiler Plant.

Please note that these lengths of pipe are approximate and will need to be measured from one 12 in WS 99psig stub to the next 12 in WS 99psig stub on Green End Ave.

BF 3/27/2017

Please attach mapping with location. Opportunity's mapping says 32 mechanic st Woonsocket. No streets in map can be located in smallworld.

Click here to view details of the Job Design in Gridforce:
https://na52.salesforce.com/a1Td0000007uare

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 4/3/2017 5:02:11 PM
To: Flynn, Brandon [brandon.flynn@nationalgrid.com]
Subject: RE: Job Design - Engineering Update

Thank You!
I am not worried about the service.
8 or 12 does not matter much.
I was just concerned about being able to supply the Navy.
In the past we could not get approval.
It would be great if things have changed.
Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

-----Original Message-----
From: Flynn, Brandon
Sent: Monday, April 03, 2017 12:06 PM
To: Dion, Thomas
Subject: RE: Job Design - Engineering Update

Hi Tom,

I am sorry I didn't get back to you sooner. I am still looking into Portsmouth Take Station and looking to see how much the supply flow rates and contract mdq will be affected. Going to speak with Adnan when he has time. I have been keeping him in the loop with this sales request and reinforcement I came up with. 3000 ft of 12 in CS will help the system out. I forgot to ask you if you wanted to stay with the 12 in CS service? I approved it with an 8 in service because that was the smallest diameter that could handle the load. I meant to ask you if they planned on adding load in the future? I will keep you informed if I hear anything else from Adnan.

Thank,
Brandon

-----Original Message-----
From: Dion, Thomas
Sent: Friday, March 31, 2017 3:36 PM
To: Flynn, Brandon
Subject: RE: Job Design - Engineering Update

Brandon,
One more thing.
Are we sure about this?
We have always had an issue with bringing the boiler plant at the Navy over to firm gas.
I would have expected much more work needed to supply this Cogen.
3000 feet is not bad.
Can you confirm?
Tom

Thomas Dion C.E.M.
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Message

From: Jeffrey.Dunham@nationalgrid.com [Jeffrey.Dunham@nationalgrid.com]
on behalf of jeffrey.dunham@nationalgrid.com [jeffrey.dunham@nationalgrid.com]
Sent: 4/25/2017 10:36:26 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: Re: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

Fred
Why the jab on the Navy I have been waiting for Tom to hear back from engineering
Jeff

On Apr 25, 2017, at 3:21 PM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:

> Jeff,
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> I talked to Jed today regarding Avalon and he said that they did indeed tell Dave Clark they were moving forward and they went on hold only because Jed told them too, because of the boilers. They are now moving forward and he tells me that he and Dave have been working it consistently. He said they canceled it because he was pushing to cancel because although the customer was saying it was going forward he was not seeing the progress. This project will stay with Dave.
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> **From:** Ferris, Gerald Jr
> **Sent:** Tuesday, April 25, 2017 2:41 PM
> **To:** Jim Falsetti
> **Cc:** Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.; Paine, Fred
> **Subject:** RE: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70
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> We are investigating from a preliminary standpoint but until we have everything locked down (size, pressure, gas draw) we cannot give you an official answer.
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> What is it you need from us to push this over the edge?
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> Gerald(Jed) Ferris
> NE CHP Program Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
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> **From:** Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
> **Sent:** Tuesday, April 25, 2017 2:36 PM
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went on to next steps. I believe we sent the consumption information. Do you require more information in order to provide an update on the gas availability at the site? Best

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Tuesday, April 25, 2017 2:22 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com>
Subject: Newport Navy CHP/Gas Consumption for the Taurus 70

Hey folks,

I have not heard from you guys in a while. Where does this project sit? Are we moving forward?

Have you narrowed down the size? Can you provide the Energy Efficiency calculations to us?

Let us know the timeline for next steps if possible.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
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Providence RI 02907
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed – sorry for the delay – attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navy's current steam boiler consumption. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

An estimate of Taurus 70 performance is shown below. I would think for the gas company they are most concerned with maximum gas requirements during the winter when their system is the most stressed. The maximum capacity of the turbine at 0 degrees OAT is shown below (data from Solar Turbines) and the fuel consumption on a lower heating value basis is ~84.21 mmbtu/hr.

As far as the duct burner, we were looking at duct firing ad additional 40 klb/hr of steam with the Taurus 70. This equates to an additional ~ 40-41 mmbtu/hr fuel input on an LHV basis.

<image001.png>

Jim, please make sure that NGRID does not add the existing boiler gas consumption to the CHP gas consumption. This is because when the turbine is operating, in most instances, the boilers will not be required to operate. The Navy may however put one, or more, of their boilers in hot standy, which will increase the gas consumption slightly

Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 4/25/2017 10:36:27 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: Re: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

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Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
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Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 4/25/2017 7:21:31 PM
To: Dunham, Jeffrey B. (Jeffrey.Dunham@nationalgrid.com) [jeffrey.dunham@nationalgrid.com]
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Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

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Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

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Sent: 4/27/2017 10:05:11 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: Fwd: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
Attachments: Newport - Questions for National Grid.docx; ATT00001.htm

Thanks

Jed

Begin forwarded message:

> **From:** "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
> **Date:** April 27, 2017 at 5:16:21 PM EDT
> **To:** Jim Falsetti <jim.falsetti@bqenergy.com>
> **Cc:** Paul Curran <paul.curran@bqenergy.com>, naveen kapur <naveenk@nkengineers.com>, "Afonso, Jacques R." <Jacques.Afonso@nationalgrid.com>, "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, "Paine, Fred" <Fred.Paine@nationalgrid.com>, "Dion, Thomas" <Thomas.Dion@nationalgrid.com>, "Kennedy, John C." <John.Kennedy@nationalgrid.com>
> **Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP**
>
> Hi Jim,
>
> I will pass along your questions to our gas growth folks however; it is difficult to answer your questions when there is no real concrete information provided to answer those question, we are talking generalities at this point? The size CHP has not be determined, the amount of gas needed is not really determined nor the pressures needed.
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> Can I suggest a meeting with our folks and the Navy again to talk about what is needed to take the next step in order for us to answer those attached questions? I have added a few folks to the chain because they all have a stake in helping this project be successful.
>
> Thanks
>
> Jed
>
> Gerald(Jed) Ferris
> NE CHP Program Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell

Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, April 27, 2017 1:28 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

Dear Jed,

Thanks for the call earlier this week. We are still moving forward, but have been waiting for more definition from the Navy in order to proceed with the correct base case. In response to our requests, they provided this list of natural gas supply questions.

Please review and call me, and we can sort out next steps from there.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

-----Original Message-----
From: Paul Curran
Sent: Thursday, April 27, 2017 12:48 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>; Michael McNulty <michael.mcnulty@bqenergy.com>
Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP

Paul F Curran, PE
Managing Director BQ Energy llc

www.bqenergy.com
office: (845) 473 0300
mobile: (914) 844 0894

47 S Hamilton Street Poughkeepsie, NY 12601

BQ Energy supports the Lets Share the Sun Foundation.

NAVSTA Newport Natural Gas – CHP Scenario

Questions for National Grid

1. DON is considering both firm and non-firm natural gas contract options for their new CHP.
    - DON is considering utilizing the existing Non-Firm Sales Service account currently supplying building 7CC to supply the CHP. DON estimates that the natural gas consumed on that existing account would increase from approximately 140,000 MMbtu/year to 550,000 MMbtu/year.
        i. Does National Grid see any issue with this arrangement?
        ii. Is the existing National Grid natural gas infrastructure outside of the DON fence line sufficient to meet the additional natural gas consumption for the CHP, and if not, who will incur the associated costs for those infrastructure upgrades?
    - Alternatively, if a new account is opened, can National Grid provide a list of all potential natural gas supply tariff options available to the DON for the new natural gas account for the CHP?
        i. Is firm supply through the Gas Cost Recovery (GCR) tariff an option?
        ii. Is the cost of assigned pipeline capacity included in the GCR rate? If not, what is the cost to obtain pipeline capacity?
        iii. Is non-firm supply through the Non-Firm Sales Service tariff an option?
        iv. It is critical that the interruptible gas (non-firm) supply for building 7CC be kept in place. Can National Grid confirm that setting up a new account for the CHP will not affect that account?
    - What are the pros and cons associated with each of the natural gas supply options from National Grid's perspective?
2. The proposed CHP will be dual-fuel capable. Does National Grid have any alternate fuel requirements or incentives for fuel switching during times of curtailment?
3. Can National Grid provide historical curtailment penalty data for NAVSTA Newport?
4. Are there any one time costs associated with setting up a new account for the CHP, if necessary (i.e. account set up fees, departing load charges, permits, etc.)? If so, please provide a complete list and estimated total cost.
5. Who will be responsible for constructing and paying for the natural gas distribution feeder and any other associated costs for connecting the CHP to the on the base? Is there any foreseeable scenario in which DON will be responsible for these costs?
6. National Grid's CHP incentive:
    - When will the developer be notified as to whether the CHP incentive has been granted?
    - Does the CHP need to break ground or be in commercial operation by a certain date in order to receive the incentive?
    - Are there any stipulations that the DON and the developer should be aware of that could encumber eligibility of the CHP incentive?
7. The DON is currently on the "Large Demand G-62" tariff for electricity. Will the DON electricity tariff change due to reduced electricity consumption as a result of the CHP project?
8. What state and federal permits or environmental compliance costs are required to construct and operate a CHP in the state of Rhode Island?

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 4/28/2017 3:11:53 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
Subject: RE: NAVSTA Newport CHP

I understand your concern about being 100% positive. Perhaps I should double check with faye.....

-----Original Message-----
From: Dion, Thomas
Sent: Friday, April 28, 2017 11:08 AM
To: Paine, Fred; Dunham, Jeffrey B.; Ferris, Gerald Jr; Afonso, Jacques R.
Subject: RE: NAVSTA Newport CHP

No, I did not.
I believe Brandon Flynn and Adnan worked on this.
I am pretty sure Brandon spoke to her about the situation.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

-----Original Message-----
From: Paine, Fred
Sent: Friday, April 28, 2017 11:02 AM
To: Dion, Thomas; Dunham, Jeffrey B.; Ferris, Gerald Jr; Afonso, Jacques R.
Subject: RE: NAVSTA Newport CHP

Tom,

Did you go directly to Faye ?

-----Original Message-----
From: Dion, Thomas
Sent: Friday, April 28, 2017 10:58 AM
To: Dunham, Jeffrey B.; Ferris, Gerald Jr; Afonso, Jacques R.; Paine, Fred
Subject: NAVSTA Newport CHP

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It appears the revenue from the new system (must be firm to realize the revenue) will cover the two growth reinforcements below.
We will need an accurate profile of usage to calculate actual CIAC.
But the CIAC should be zero.
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We have been looking at the Navy Power Plant for the last 10 years.
I am very surprised we can supply this additional load.
I have asked the questions, and it keeps coming back the same.
Tom

BF 3/31/2017
Gas Operations Engineering approves the proposed load of 126,000 CFH contingent upon:
1) Growth Reinforcement: Due to the integrity of the 99psig, 35psig, and LP systems in the surrounding locations of this request, the installation of approx. 3,000 ft of 12 in WS 99psig main on Green End Avenue in Middletown RI will be an adequate reinforcement keep all pressures above system minimum and allow the customer to achieve its desired gas capacity request.
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280 Melrose St
Providence, RI 02907

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-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Friday, April 28, 2017 9:57 AM
To: Ferris, Gerald Jr; Jim Falsetti; Paul Curran; naveen kapur; Afonso, Jacques R.; Dion, Thomas; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
Cc: Kennedy, John C.; Paine, Fred; Smith, Harmony
Subject: NAVSTA Newport CHP meeting

Jim/John
I have taken over responsibility for this CHP project. Hope all is well and am looking forward to working with you once again.

Folks
I think it would be best to get together and talk this project through to determine who has what for action items and get everyone's questions and concerns on the table. I spoke to Jim Falsetti and he can come to the Navy base for a meeting on Tuesday May 9th at 1PM or Wednesday May 10th at any time. I would plan on a 2 hour time frame for the meeting.
Please let me know your availability below for these two days

	5/9 1PM	5/10 time?
Jeff Dunham	1PM	9 till 3
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Jim Carlson		
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Jed Ferris		
Tom Dion		
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Naveen Kapur		
Paul Curran		

Jeffrey Dunham
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From: Ferris, Gerald Jr
Sent: Thursday, April 27, 2017 5:16 PM
To: Jim Falsetti
Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

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Jed

Gerald(Jed) Ferris
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From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
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Cc: Paul Curran; naveen kapur
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Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

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From: Paul Curran
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To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>; Michael McNulty <michael.mcnulty@bqenergy.com>
Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP

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Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 4/28/2017 3:58:06 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
Subject: Re: NAVSTA Newport CHP

Yes I understand

> On Apr 28, 2017, at 11:47 AM, Dion, Thomas <Thomas.Dion@nationalgrid.com> wrote:
>
> Can I call in?
>
> Thomas Dion C.E.M.
> National Grid
> 280 Melrose St
> Providence, RI 02907
> P. 401-784-7153
> F. 401-406-3434
>
>
> -----Original Message-----
> From: Dunham, Jeffrey B.
> Sent: Friday, April 28, 2017 11:23 AM
> To: Dion, Thomas
> Cc: Paine, Fred; Ferris, Gerald Jr; Afonso, Jacques R.
> Subject: Re: NAVSTA Newport CHP
>
> Tom
> Jed is available on the Wednesday for the meeting what is your availability on the 10th
>
>> On Apr 28, 2017, at 11:08 AM, Dion, Thomas <Thomas.Dion@nationalgrid.com> wrote:
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>> No, I did not.
>> I believe Brandon Flynn and Adnan worked on this.
>> I am pretty sure Brandon spoke to her about the situation.
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>> Sent: Friday, April 28, 2017 11:02 AM
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>> Subject: RE: NAVSTA Newport CHP
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>> Sent: Friday, April 28, 2017 10:58 AM
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>> To: Ferris, Gerald Jr; Jim Falsetti; Paul Curran; naveen kapur; Afonso, Jacques R.; Dion, Thomas; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
>> Cc: Kennedy, John C.; Paine, Fred; Smith, Harmony
>> Subject: NAVSTA Newport CHP meeting
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>> I have taken over responsibility for this CHP project. Hope all is well and am looking forward to working with you once again.
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>> Jed Ferris
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>> Jacques Afonso
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>> Naveen Kapur
>>
>> Paul Curran
>>
>> Jeffrey Dunham
>> Certified Energy Manager
>> LEED Accredited Professional (AP)
>> National Grid
>> 280 Melrose St.
>> Providence, RI 02907
>> 401-784-7638 Office
>> 401-527-4055 Cell
>> 315-460-8954 Fax
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>> -----Original Message-----
>> From: Ferris, Gerald Jr
>> Sent: Thursday, April 27, 2017 5:16 PM
>> To: Jim Falsetti
>> Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
>> Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
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>> Hi Jim,
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>> I will pass along your questions to our gas growth folks however; it is difficult to answer your questions when there is no real concrete information provided to answer those question, we are talking generalities at this point? The size CHP has not be determined, the amount of gas needed is not really determined nor the pressures needed.
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>> Gerald.ferris@nationalgrid.com
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>> -----Original Message-----
>> From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
>> Sent: Thursday, April 27, 2017 1:28 PM
>> To: Ferris, Gerald Jr
>> Cc: Paul Curran; naveen kapur
>> Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
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>> Dear Jed,
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>> From: Paul Curran
>> Sent: Thursday, April 27, 2017 12:48 PM
>> To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>; Michael McNulty <michael.mcnulty@bqenergy.com>
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>> BQ Energy supports the Lets Share the Sun Foundation.
>>

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 4/28/2017 1:42:03 PM
To: Kennedy, John C. [john.kennedy@nationalgrid.com]
Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

John
Should she be included on strictly CHP discussions?

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Kennedy, John C.
Sent: Thursday, April 27, 2017 6:33 PM
To: Dunham, Jeffrey B.; Smith, Harmony
Cc: Ferris, Gerald Jr; Afonso, Jacques R.; Paine, Fred; Dion, Thomas
Subject: Re: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

Including Harmony. She is handling solar projects for DON.

John Kennedy

> On Apr 27, 2017, at 6:18 PM, Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com> wrote:
>
> I will try to get a meeting set up
>
> Jeffrey Dunham
> Certified Energy Manager
> LEED Accredited Professional (AP)
> National Grid
> 280 Melrose St.
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Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 4/28/2017 11:54:06 AM
To: Doyle, Kerrie [kerrie.doyle@nationalgrid.com]
CC: jacques.afonso@nationalgrid.com
Subject: FW: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
Attachments: Newport - Questions for National Grid.docx

Kerrie,
This is a strategic project.
I cannot handle this type of request with the current setup we have in RI.
Not to mention Randy is out.
I need help.
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
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F. 401-406-3434

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Questions for National Grid

1. DON is considering both firm and non-firm natural gas contract options for their new CHP.
    - DON is considering utilizing the existing Non-Firm Sales Service account currently supplying building 7CC to supply the CHP. DON estimates that the natural gas consumed on that existing account would increase from approximately 140,000 MMbtu/year to 550,000 MMbtu/year.
        i. Does National Grid see any issue with this arrangement?
        ii. Is the existing National Grid natural gas infrastructure outside of the DON fence line sufficient to meet the additional natural gas consumption for the CHP, and if not, who will incur the associated costs for those infrastructure upgrades?
    - Alternatively, if a new account is opened, can National Grid provide a list of all potential natural gas supply tariff options available to the DON for the new natural gas account for the CHP?
        i. Is firm supply through the Gas Cost Recovery (GCR) tariff an option?
        ii. Is the cost of assigned pipeline capacity included in the GCR rate? If not, what is the cost to obtain pipeline capacity?
        iii. Is non-firm supply through the Non-Firm Sales Service tariff an option?
        iv. It is critical that the interruptible gas (non-firm) supply for building 7CC be kept in place. Can National Grid confirm that setting up a new account for the CHP will not affect that account?
    - What are the pros and cons associated with each of the natural gas supply options from National Grid's perspective?
2. The proposed CHP will be dual-fuel capable. Does National Grid have any alternate fuel requirements or incentives for fuel switching during times of curtailment?
3. Can National Grid provide historical curtailment penalty data for NAVSTA Newport?
4. Are there any one time costs associated with setting up a new account for the CHP, if necessary (i.e. account set up fees, departing load charges, permits, etc.)? If so, please provide a complete list and estimated total cost.
5. Who will be responsible for constructing and paying for the natural gas distribution feeder and any other associated costs for connecting the CHP to the on the base? Is there any foreseeable scenario in which DON will be responsible for these costs?
6. National Grid's CHP incentive:
    - When will the developer be notified as to whether the CHP incentive has been granted?
    - Does the CHP need to break ground or be in commercial operation by a certain date in order to receive the incentive?
    - Are there any stipulations that the DON and the developer should be aware of that could encumber eligibility of the CHP incentive?
7. The DON is currently on the "Large Demand G-62" tariff for electricity. Will the DON electricity tariff change due to reduced electricity consumption as a result of the CHP project?
8. What state and federal permits or environmental compliance costs are required to construct and operate a CHP in the state of Rhode Island?

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 4/28/2017 6:12:06 PM
To: Dion, Thomas (Thomas.Dion@nationalgrid.com) [thomas.dion@nationalgrid.com]
Subject: FW: NAVSTA Newport CHP

Fyi - nothing more we can do now. Double Checked and it's a go in our system.

-----Original Message-----
From: Brown, Faye
Sent: Friday, April 28, 2017 2:07 PM
To: Paine, Fred
Subject: RE: NAVSTA Newport CHP

Fred,
We completed the GCR review and recommended a growth reinforcement. Brandon works for me. I am checking supply to make sure we checked with everyone. Thanks.

- Faye Brown
Manager – Gas Operations Engineering
O 781-907-2777
C 617-828-1836

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Sent: Friday, April 28, 2017 11:27 AM
To: Brown, Faye
Subject: FW: NAVSTA Newport CHP

Faye,

We are very close to selling this project, I just want to confirm the gas availability. Please read the email chain below.

-----Original Message-----
From: Dion, Thomas
Sent: Friday, April 28, 2017 11:08 AM
To: Paine, Fred; Dunham, Jeffrey B.; Ferris, Gerald Jr; Afonso, Jacques R.
Subject: RE: NAVSTA Newport CHP

No, I did not.
I believe Brandon Flynn and Adnan worked on this.
I am pretty sure Brandon spoke to her about the situation.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

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From: Paine, Fred
Sent: Friday, April 28, 2017 11:02 AM
To: Dion, Thomas; Dunham, Jeffrey B.; Ferris, Gerald Jr; Afonso, Jacques R.
Subject: RE: NAVSTA Newport CHP

Tom,

Did you go directly to Faye ?

-----Original Message-----
From: Dion, Thomas
Sent: Friday, April 28, 2017 10:58 AM
To: Dunham, Jeffrey B.; Ferris, Gerald Jr; Afonso, Jacques R.; Paine, Fred
Subject: NAVSTA Newport CHP

Good morning all,
Based on the comments below, the Navy CHP project can be on firm gas.
It appears the revenue from the new system (must be firm to realize the revenue) will cover the two growth reinforcements below.

We will need an accurate profile of usage to calculate actual CIAC.
But the CIAC should be zero.
I would only like to caution everyone a bit.
We have been looking at the Navy Power Plant for the last 10 years.
I am very surprised we can supply this additional load.
I have asked the questions, and it keeps coming back the same.
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BF 3/31/2017
Gas Operations Engineering approves the proposed load of 126,000 CFH contingent upon:
1) Growth Reinforcement: Due to the integrity of the 99psig, 35psig, and LP systems in the surrounding locations of this request, the installation of approx. 3,000 ft of 12 in WS 99psig main on Green End Avenue in Middletown RI will be an adequate reinforcement keep all pressures above system minimum and allow the customer to achieve its desired gas capacity request.
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3) After this reinforcement is complete, the installation of up to 100 ft of 8 in WS 99psig service off of the existing 12 in WS 99psig main will be adequate to serve the Boiler Plant.

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-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Friday, April 28, 2017 9:57 AM
To: Ferris, Gerald Jr; Jim Falsetti; Paul Curran; naveen kapur; Afonso, Jacques R.; Dion, Thomas; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
Cc: Kennedy, John C.; Paine, Fred; Smith, Harmony
Subject: NAVSTA Newport CHP meeting

Jim/John
I have taken over responsibility for this CHP project. Hope all is well and am looking forward to working with you once again.

Folks
I think it would be best to get together and talk this project through to determine who has what for action items and get everyone's questions and concerns on the table. I spoke to Jim Falsetti and he can come to the Navy base for a meeting on Tuesday May 9th at 1PM or Wednesday May 10th at any time. I would plan on a 2 hour time frame for the meeting.
Please let me know your availability below for these two days

	5/9 1PM	5/10 time?
Jeff Dunham	1PM	9 till 3
Jim Falsetti	1PM	9 till 3

Jim Carlson

John Reichert

Jed Ferris

Tom Dion

Jacques Afonso

Naveen Kapur

Paul Curran

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Ferris, Gerald Jr
Sent: Thursday, April 27, 2017 5:16 PM
To: Jim Falsetti
Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

Hi Jim,

I will pass along your questions to our gas growth folks however; it is difficult to answer your questions when there is no real concrete information provided to answer those question, we are talking generalities at this point? The size CHP has not be determined, the amount of gas needed is not really determined nor the pressures needed.

I cannot answer your CHP incentive questions either until you give us more information in the form of an energy efficiency study or we hire someone to study your thermal and electric load profiles in conjunction with an actual properly sized CHP.

Can I suggest a meeting with our folks and the Navy again to talk about what is needed to take the next step in order for us to answer those attached questions? I have added a few folks to the chain because they all have a stake in helping this project be successful.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, April 27, 2017 1:28 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

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Please review and call me, and we can sort out next steps from there.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

-----Original Message-----
From: Paul Curran
Sent: Thursday, April 27, 2017 12:48 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>; Michael McNulty <michael.mcnulty@bqenergy.com>
Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP

Paul F Curran, PE
Managing Director BQ Energy llc

www.bqenergy.com
office: (845) 473 0300
mobile: (914) 844 0894

47 S Hamilton Street Poughkeepsie, NY 12601

BQ Energy supports the Lets Share the Sun Foundation.

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 4/28/2017 3:11:11 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: NAVSTA Newport CHP meeting

I am not available in person meeting on 5/9 at 1 pm

I can be available on 5/10 from 9 until 3 pm in person.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

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mobile: (914) 844 0894

47 S Hamilton Street Poughkeepsie, NY 12601

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Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 4/28/2017 6:16:36 PM
To: Brown, Faye [faye.brown@nationalgrid.com]; Culliford, Nancy G. (Marketing) [nancy.culliford@nationalgrid.com]; Soroka, Stephen [stephen.soroka@nationalgrid.com]
CC: Malik, Adnan [adnan.malik@nationalgrid.com]; Flynn, Brandon [brandon.flynn@nationalgrid.com]; Isgro, Anthony [anthony.isgro@nationalgrid.com]; Caliri, Stephen A. [stephen.caliri@nationalgrid.com]; Day, Alexander J. [alexander.day@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]
Subject: RE: U.S Navy JOB-00053762 Growth Reinforcement

Faye,
Thanks for your help.
Just a few more questions.
Did we make upgrades on the island?
Do we still utilize the LNG station on the Navy Base?
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Brown, Faye
Sent: Friday, April 28, 2017 2:13 PM
To: Culliford, Nancy G. (Marketing); Soroka, Stephen
Cc: Malik, Adnan; Flynn, Brandon; Isgro, Anthony; Caliri, Stephen A.; Dion, Thomas; Day, Alexander J.; Paine, Fred
Subject: FW: U.S Navy JOB-00053762 Growth Reinforcement

Steve,
The customer group is closer to finalizing this opportunity. Were the meter and heater capacities confirmed? Please let us know.

Nancy,
Navy has a CHP project to add 126 dt/hr. Once we have meter and heater capacities confirmed, what other supply questions do we need answered? Please let us know.

Thank you both.

- Faye Brown
Manager – Gas Operations Engineering
O 781-907-2777
C 617-828-1836

From: Flynn, Brandon
Sent: Friday, April 28, 2017 2:04 PM
To: Brown, Faye
Subject: FW: U.S Navy JOB-00053762 Growth Reinforcement

From: Soroka, Stephen
Sent: Friday, April 14, 2017 2:08 PM
To: Malik, Adnan
Cc: Dion, Thomas; Flynn, Brandon
Subject: Re: U.S Navy JOB-00053762 Growth Reinforcement

Good call. I'll check that as well.

Steve

Sent from my iPhone

On Apr 14, 2017, at 2:07 PM, Malik, Adnan <Adnan.Malik@nationalgrid.com> wrote:

> That's correct – this load would be on the 99 psig system and not the 55 psig. Can you verify the Spectra and Grid meters and heater capacity at the station would also allow this additional volume?
>
> Thanks,
> **Adnan Malik**
>
> ---
> **From:** Soroka, Stephen
> **Sent:** Friday, April 14, 2017 2:04 PM
> **To:** Malik, Adnan
> **Cc:** Dion, Thomas; Flynn, Brandon
> **Subject:** RE: U.S Navy JOB-00053762 Growth Reinforcement
>
> Adnan,
>
> Based on data we have, our 5 yr expected peak day flow is 1167mscfh (can you confirm this?). With the added load of 126mscfh (total 1293mscfh), the Portsmouth TS will easily handle the added load. Even with a low inlet pressure of 400# to the station we would be running at 26% capacity. At 750# (full inlet) we are running at 14% capacity.
>
> Is this fed off the 99# system out of Portsmouth TS? If so, we should be all set. Otherwise I'll check the added load against the 60# reg station located in the TS to ensure it will also handle this added load.
>
> Let me know if you need anything else.
>
> Steve
>
> ---
> **From:** Malik, Adnan
> **Sent:** Thursday, April 13, 2017 1:51 PM
> **To:** Soroka, Stephen
> **Cc:** Dion, Thomas; Flynn, Brandon
> **Subject:** RE: U.S Navy JOB-00053762 Growth Reinforcement
>
> Steve – can you check and see if the Portsmouth Take Station can flow an additional 126Dth/hr for sales?
>
> **Adnan Malik**
>
> ---
> **From:** Dion, Thomas
> **Sent:** Thursday, April 13, 2017 11:30 AM
> **To:** Flynn, Brandon

Cc: Malik, Adnan
Subject: RE: U.S Navy JOB-00053762 Growth Reinforcement

I was waiting for you to confirm we can supply the gas.
In the past we have not been able to supply the boiler plant at the Navy.
I just want to be absolutely sure we can supply the proposed cogen before I run back to the Navy.
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Flynn, Brandon
Sent: Thursday, April 13, 2017 11:02 AM
To: Dion, Thomas
Cc: Malik, Adnan
Subject: U.S Navy JOB-00053762 Growth Reinforcement

Tom,

What is the status with this job design? Will they be moving forward with the reinforcement in the near future? Adnan has addressed an issue to me about installing the 12 in WS 99psig main at Aquidneck @ Green End Ave. This intersection needs to be priority when starting the installation of 12 in WS 99psig main. We will need to start the construction at this location and work our way east outside of the intersection down Green End Ave. Please let us know if you have heard anything from the customer about starting the project so we can plan ahead.

Thank you,

Brandon W. Flynn
Associate Engineer, Gas Operations Engineering
nationalgrid
40 Sylvan Rd, Waltham MA
Office: (781) 908-3457
Cell: (508) 850-6881

Message

From: Brown, Faye [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FAYE.BROWN]
Sent: 4/28/2017 6:12:45 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: RE: NAVSTA Newport CHP

We are having more and more areas that are tough to get gas to with more folks wanting more and more gas! Will copy you and Tom. Thanks.

- Faye Brown
Manager - Gas Operations Engineering
O 781-907-2777
C 617-828-1836

-----Original Message-----
From: Paine, Fred
Sent: Friday, April 28, 2017 2:11 PM
To: Brown, Faye
Subject: RE: NAVSTA Newport CHP

Faye,

Big project, tough area to get gas in the past, so just wanted to be sure all round. Employing the better safe than sorry rule.

Thanks for your help !

Have a nice weekend.

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To: Paine, Fred
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From: Brown, Faye [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FAYE.BROWN]
Sent: 5/1/2017 2:27:39 PM
To: Malik, Adnan [adnan.malik@nationalgrid.com]; Stasiuk, Paul A. [paul.stasiuk@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Flaherty, William J. [william.flaherty@nationalgrid.com]
CC: Doyle, Kerrie [kerrie.doyle@nationalgrid.com]; Isgro, Anthony [anthony.isgro@nationalgrid.com]; Caliri, Stephen A. [stephen.caliri@nationalgrid.com]
Subject: RE: Southern Rhode Island Capacity Analysis

Although the discussions are focusing on southern RI, we should identify substantial potential loads for all of RI for Forecasting and Supply. The recent GCR activity in the Cumberland area show that this area is also constrained. Thanks.

- Faye Brown
Manager – Gas Operations Engineering
O 781-907-2777
C 617-828-1836

From: Malik, Adnan
Sent: Monday, May 01, 2017 10:11 AM
To: Stasiuk, Paul A.; Dion, Thomas; Flaherty, William J.
Cc: Brown, Faye
Subject: RE: Southern Rhode Island Capacity Analysis

Regarding the Navy load – yes, it would not be impacted by the Cranston constraint, but since it's substantial enough, it would be nice to have it built into the forecast so Supply can keep up with it and we could ensure no other impacts occur.

Adnan Malik

From: Stasiuk, Paul A.
Sent: Monday, May 01, 2017 10:08 AM
To: Dion, Thomas; Malik, Adnan; Flaherty, William J.
Cc: Brown, Faye
Subject: RE: Southern Rhode Island Capacity Analysis

Toray Plastics has two services in Quonset: Lumirror and Toray Fan…….Paul

---

From: Dion, Thomas
Sent: Monday, May 01, 2017 10:05 AM
To: Malik, Adnan; Flaherty, William J.
Cc: Brown, Faye; Stasiuk, Paul A.
Subject: RE: Southern Rhode Island Capacity Analysis

Adnan,
The Navy is in Newport and fed from Middletown Gate re Tiverton area pipeline.
Did not think it was a load on the Cranston gate.
Does it impact Southern RI????

Miozzi went non-firm.
Customer is OK with that.
We could look at bringing them on firm if we have spare capacity on the distribution system.

I think Lumirror is part of Toray????
Paul ?????

Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Malik, Adnan
Sent: Monday, May 01, 2017 9:47 AM
To: Flaherty, William J.
Cc: Dion, Thomas; Brown, Faye
Subject: RE: Southern Rhode Island Capacity Analysis

Tom – I was going to ask if you may want to include the Newport Navy one in this as well possibly?

Also – I noticed Lumirror and Miozzi were not shown on the list unless I'm mistaken?

Thanks,
Adnan Malik

From: Flaherty, William J.
Sent: Friday, April 28, 2017 3:31 PM
To: Malik, Adnan; Brown, Faye
Cc: Stasiuk, Paul A.; Isgro, Anthony; Horan, Timothy F.; Currie, John B. (Distribution Finance); Doyle, Kerrie; Dion, Thomas; Poe Jr, Theodore E.; Cross, James A Jr.
Subject: RE: Southern Rhode Island Capacity Analysis

Adnan – Our sales team (Kerrie/Tom) along with Paul Stasiuk provided the attached info on expected gas loads for Southern Rhode Island. As you can see much of it will be coming over the next couple of years, and ED and Toray are not far behind. That Quaker Road constraint is discouraging gas growth in this region and I know it could become a bigger issue at Quonset Point at some point.

Let us know what else you might need. Thanks, Bill

<< File: Copy of Copy of SORI Gas Growth xls.xlsx >>

From: Malik, Adnan
Sent: Monday, April 17, 2017 10:29 AM
To: Flaherty, William J.; Brown, Faye

Cc: Stasiuk, Paul A.; Isgro, Anthony
Subject: RE: Southern Rhode Island Capacity Analysis

Hi Bill,

After our meeting, the first and most critical step in moving forward is to get this expected growth built into the new forecast expected to be published in June. That would require extensive Sales support to get detailed growth expectations, i.e. specific customers, expected load, & expected year in-service to Forecasting (Ted Poe's group). The published forecast is what is referenced to the PUC in order to justify any project.

At the same time, Long Term Planning is currently obtaining buy-in to justify a large project of this nature, and drafting a Sanction Paper for this expected growth. Once the forecast is published, we would receive better support from Supply to see if we can proceed with sanctioning to see if the project is justifiable.

Thanks,
Adnan Malik

From: Flaherty, William J.
Sent: Monday, April 17, 2017 7:27 AM
To: Malik, Adnan; Brown, Faye
Cc: Stasiuk, Paul A.
Subject: FW: Southern Rhode Island Capacity Analysis

Adnan / Faye – What is the next step on this ? Have all the options been looked at ? Are we looking to discuss it as part of the ISR ?

From: Arangio, Elizabeth C. (Marketing)
Sent: Monday, April 10, 2017 3:41 PM
To: Malik, Adnan; Brown, Faye; Rennick, Kevin M.; Giustino, Clara; Isgro, Anthony; Kruchten, Dale; Calzada, Jorge
Cc: Aprigliano, Eric E.; Caliri, Stephen A.; Culliford, Nancy G. (Marketing); Poe Jr, Theodore E.; Leone, Michele; Flaherty, William J.; Doyle, Kerrie; Dion, Thomas; Stasiuk, Paul A.; Flynn, Brandon; Wines, Leslie; Arangio, Elizabeth C. (Marketing)
Subject: RE: Southern Rhode Island Capacity Analysis

Hi All,

Following up on the conference call last week, I just wanted to reach out to determine the next steps to make certain I am not missing a 'to-do' on my plate.
What are the next steps besides bringing Dales' group into the mix? I have added both Dale and Jorge onto the cc list.
It is critical that the pending loads are incorporated into the forecast due out in June 2017 so that both Gas Supply and Gas System Planning can plan accordingly.

If there needs to be another call I am happy to participate.
Thanks,
Liz

Liz Arangio
Director Gas Supply Planning
40 Sylvan Road, 1st Floor
Waltham, MA 02451
Office: 781-907-1639
Cell: 617-212-1790

-----Original Appointment-----
From: Malik, Adnan
Sent: Thursday, March 23, 2017 1:01 PM
To: Malik, Adnan; Brown, Faye; Rennick, Kevin M.; Giustino, Clara; Arangio, Elizabeth C. (Marketing); Isgro, Anthony
Cc: Aprigliano, Eric E.; Caliri, Stephen A.; Culliford, Nancy G. (Marketing); Poe Jr, Theodore E.; Leone, Michele; Flaherty, William J.; Doyle, Kerrie; Dion, Thomas; Stasiuk, Paul A.; Flynn, Brandon; Wines, Leslie
Subject: Southern Rhode Island Capacity Analysis
When: Thursday, April 06, 2017 3:00 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Conference Call: 1-866-844-9417 PC#: 9299-6564, CR - ResWoods - V(7) E2.925 - DRAKE

Conference Call: 1-866-844-9417 PC#: 9299-6564

In order to review/inform all parties of the constraints of the Southern Rhode Island system and review possible projects to improve pressures and increase capacity for future customers. I envision the meeting to proceed as follows:

1) Kevin - Introduction to Need (5-10 min)
2) << File: Presentation Combo.pdf >> Adnan – System Overview & Engineering Analysis (15-25 min)
3) Discussion surrounding the analysis, supply constraints, and next steps. (30 min)

Let me know if this sounds sufficient? I'll send an email for the engineering study in advance of this meeting.

Thanks,

Adnan Malik

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/1/2017 2:51:34 PM
To: Malik, Adnan [adnan.malik@nationalgrid.com]
CC: Poe Jr, Theodore E. [theodore.poejr@nationalgrid.com]
Subject: RE: Southern Rhode Island Capacity Analysis

June 2018 is my best guess.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Malik, Adnan
Sent: Monday, May 01, 2017 10:49 AM
To: Dion, Thomas
Cc: Poe Jr, Theodore E.
Subject: RE: Southern Rhode Island Capacity Analysis

What's the expected in-service date?

- **Adnan Malik**
-

From: Dion, Thomas
Sent: Monday, May 01, 2017 10:35 AM
To: Malik, Adnan; Stasiuk, Paul A.; Flaherty, William J.; Doyle, Kerrie; Carroll, Kathleen
Cc: Brown, Faye
Subject: RE: Southern Rhode Island Capacity Analysis

Great idea.
Maybe we can get it added to the list.

Naval Station Newport CHP Project
126 DTH/hour
734,667 DTH annual
7,346,673 therms annual
CIAC = $0

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
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Liz

Liz Arangio
Director Gas Supply Planning
40 Sylvan Road, 1st Floor
Waltham, MA 02451
Office: 781-907-1639
Cell: 617-212-1790

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Let me know if this sounds sufficient? I'll send an email for the engineering study in advance of this meeting.

Thanks,

Adnan Malik

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 5/4/2017 5:30:13 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

I understand that but I have to start somewhere

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Ferris, Gerald Jr
Sent: Thursday, May 04, 2017 1:19 PM
To: Dunham, Jeffrey B.
Subject: Re: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

I just looked at this string these questions make no sense and they won't talk to us direct so we're going to have questions and then they're going to go back to the Navy and ask those questions then the Navy is going to go back to DQ and answer questions and so on. We really need to meet as a group not as separate entities.

Thanks

Jed

> On May 4, 2017, at 12:45 PM, Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com> wrote:
>
> Hi Paul
> I would like to have some sort of conference call or meeting in the near future to discuss this project if possible
> Jeff
>
> Jeffrey Dunham
> Certified Energy Manager
> LEED Accredited Professional (AP)
> National Grid
> 280 Melrose St.
> Providence, RI 02907
> 401-784-7638 Office
> 401-527-4055 Cell
> 315-460-8954 Fax
>
> -----Original Message-----
> From: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [mailto:daniel.l.sullivan3@navy.mil]
> Sent: Wednesday, May 03, 2017 5:37 PM
> To: Dunham, Jeffrey B.
> Cc: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paul Curran
> Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting
>
> Hi Jeff,
>
> Probably best that you work through the contractor, BQ, to arrange a meeting. We are working our questions through them, and they are managing, what will be, the construction project.
>
> I am CCing their project lead, Paul Curran.
>
> Regards,
> Dan
>
> Daniel L. Sullivan, P.E.
>
> Asset Management Branch Head
> NAVFAC Mid-Atlantic

> Naval Station Newport
> Public Works Department, Code PRR12
> 1 Simonpietri Drive
> Newport, RI 02841
>
> daniel.l.sullivan3@navy.mil
> Comm: (401) 841-7619
> DSN: 841-7619
> Fax: (401) 841-2816
>
> Your opinion is important to me! Please take a moment to provide feedback via the comment card at the link below:
> https://ice.disa.mil/index.cfm?fa=card&sp=113004&s=499&dep=*DoD&sc=5
>
> -----Original Message-----
> From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
> Sent: Friday, April 28, 2017 11:24 AM
> To: Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
> Cc: Pascual, Beth A CIV NAVFAC LANT, PW64; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport
> Subject: [Non-DoD Source] Re: EXT || RE: NAVSTA Newport CHP meeting
>
> Thanks Jim
> Looks like Wednesday the 10th will work better for Ngrid
>
>> On Apr 28, 2017, at 10:33 AM, Carlson, James F CIV NAVFAC MIDLANT, PWD Newport <james.f.carlson1@navy.mil> wrote:
>>
>> Hi Jeff,
>>
>> I sent your request to primary Navy POCs for this project (on CC line). We will get back to you soon.
>>
>> Thanks//
>> Jim
>>
>>
>>
>> -----Original Message-----
>> From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
>> Sent: Friday, April 28, 2017 10:17 AM
>> To: Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
>> Subject: [Non-DoD Source] RE: EXT || RE: NAVSTA Newport CHP meeting
>>
>> Hi Jim
>> What is your availability on the two days below
>>
>> Jeffrey Dunham
>> Certified Energy Manager
>> LEED Accredited Professional (AP)
>> National Grid
>> 280 Melrose St.
>> Providence, RI 02907
>> 401-784-7638 Office
>> 401-527-4055 Cell
>> 315-460-8954 Fax
>>
>>
>> -----Original Message-----
>> From: Carlson, James F CIV NAVFAC MIDLANT, PWD Newport [mailto:james.f.carlson1@navy.mil]
>> Sent: Friday, April 28, 2017 10:16 AM
>> To: Dunham, Jeffrey B.
>> Subject: EXT || RE: NAVSTA Newport CHP meeting
>>
>> Welcome back, look forward to seeing you again.
>>
>> -----Original Message-----
>> From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
>> Sent: Friday, April 28, 2017 9:57 AM
>> To: Ferris, Gerald Jr; Jim Falsetti; Paul Curran; naveen kapur; Afonso, Jacques R.; Dion, Thomas; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
>> Cc: Kennedy, John C.; Paine, Fred; Smith, Harmony
>> Subject: [Non-DoD Source] NAVSTA Newport CHP meeting
>>
>> Jim/John
>> I have taken over responsibility for this CHP project. Hope all is well and am looking forward to working with you once again.
>>
>> Folks

>> I think it would be best to get together and talk this project through to determine who has what for action items and get everyone's questions and concerns on the table. I spoke to Jim Falsetti and he can come to the Navy base for a meeting on Tuesday May 9th at 1PM or Wednesday May 10th at any time. I would plan on a 2 hour time frame for the meeting.
>> Please let me know your availability below for these two days
>>
>>   5/9 1PM   5/10 time?
>> Jeff Dunham   1PM   9 till 3
>>
>> Jim Falsetti   1PM   9 till 3
>>
>> Jim Carlson
>>
>> John Reichert
>>
>> Jed Ferris
>>
>> Tom Dion
>>
>> Jacques Afonso
>>
>> Naveen Kapur
>>
>> Paul Curran
>>
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>>
>> -----Original Message-----
>> From: Ferris, Gerald Jr
>> Sent: Thursday, April 27, 2017 5:16 PM
>> To: Jim Falsetti
>> Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
>> Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
>>
>> Hi Jim,
>>
>> I will pass along your questions to our gas growth folks however; it is difficult to answer your questions when there is no real concrete information provided to answer those question, we are talking generalities at this point? The size CHP has not be determined, the amount of gas needed is not really determined nor the pressures needed.
>>
>> I cannot answer your CHP incentive questions either until you give us more information in the form of an energy efficiency study or we hire someone to study your thermal and electric load profiles in conjunction with an actual properly sized CHP.
>>
>> Can I suggest a meeting with our folks and the Navy again to talk about what is needed to take the next step in order for us to answer those attached questions? I have added a few folks to the chain because they all have a stake in helping this project be successful.
>>
>> Thanks
>>
>> Jed
>>
>> Gerald(Jed) Ferris
>> NE CHP Program Manager
>> National Grid
>> 280 Melrose Street
>> Providence RI 02907
>> 401 784-7364 Work
>> 401 450-9416 Cell
>> Gerald.ferris@nationalgrid.com
>>
>>
>> -----Original Message-----
>> From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
>> Sent: Thursday, April 27, 2017 1:28 PM
>> To: Ferris, Gerald Jr
>> Cc: Paul Curran; naveen kapur

>> Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
>>
>> Dear Jed,
>>
>> Thanks for the call earlier this week. We are still moving forward, but have been waiting for more definition from the Navy in order to proceed with the correct base case. In response to our requests, they provided this list of natural gas supply questions.
>>
>> Please review and call me, and we can sort out next steps from there.
>>
>> Best,
>>
>> Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446
>>
>>
>> -----Original Message-----
>> From: Paul Curran
>> Sent: Thursday, April 27, 2017 12:48 PM
>> To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>; Michael McNulty <michael.mcnulty@bqenergy.com>
>> Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP
>>
>>
>>
>> Paul F Curran, PE
>> Managing Director BQ Energy llc
>>
>> www.bqenergy.com
>> office: (845) 473 0300
>> mobile: (914) 844 0894
>>
>> 47 S Hamilton Street Poughkeepsie, NY 12601
>>
>> BQ Energy supports the Lets Share the Sun Foundation.
>>
>>
>>
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>>
>> You may report the matter by contacting us via our UK Contacts Page<http://www2.nationalgrid.com/contact-us/> or our US Contacts Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking on the appropriate link)
>>
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>>
>> For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm
>>
>>
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>>
>> You may report the matter by contacting us via our UK Contacts Page<http://www2.nationalgrid.com/contact-us/> or our US Contacts Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking on the appropriate link)
>>
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>>
>> For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm
>
>
>
> This e-mail, and any attachments are strictly confidential and intended for the addressee(s) only. The content may also contain legal, professional or other privileged information. If you are not the intended recipient, please notify the sender immediately and then delete the e-mail and any attachments. You should not disclose, copy or take any action in reliance on this transmission.

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> You may report the matter by contacting us via our UK Contacts
Page<http://www2.nationalgrid.com/contact-us/> or our US Contacts
Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking on the appropriate link)
>
> Please ensure you have adequate virus protection before you open or detach any documents from this transmission. National Grid plc and its affiliates do not accept any liability for viruses. An e-mail reply to this address may be subject to monitoring for operational reasons or lawful business practices.
>
> For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 5/5/2017 2:39:53 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Yeah but in the summer he has a great assistant

-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Friday, May 05, 2017 10:39 AM
To: Paine, Fred
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

He sucks anyway lol

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Paine, Fred
Sent: Friday, May 05, 2017 10:39 AM
To: Dunham, Jeffrey B.
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

I understood that as well

-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Friday, May 05, 2017 10:38 AM
To: Paine, Fred
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Understood just wanted you to know that the CHP manager was not the one selling the job :)

Jeffrey Dunham
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401-527-4055 Cell
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-----Original Message-----
From: Paine, Fred
Sent: Friday, May 05, 2017 10:24 AM
To: Dunham, Jeffrey B.
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

In the afternoon, I will participate if available....but I am not integral to the call

-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Friday, May 05, 2017 10:20 AM
To: Dion, Thomas; Ferris, Gerald Jr; Afonso, Jacques R.
Cc: Jim Falsetti; Michael McNulty; Paul Curran; Paine, Fred
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Folks
Please let me know your availability Monday May 8th for a conference call to discuss the CHP project
Thanks

Jeffrey Dunham
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LEED Accredited Professional (AP)
National Grid
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Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Paul Curran [mailto:paul.curran@bqenergy.com]
Sent: Thursday, May 04, 2017 5:45 PM
To: Dunham, Jeffrey B.
Cc: Jim Falsetti; Michael McNulty
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Super.

We are available on Friday afternoon or Monday next week if more convenient.

Paul F Curran, PE
Managing Director
BQ Energy llc

www.bqenergy.com
office: (845) 473 0300
mobile: (914) 844 0894

47 S Hamilton Street
Poughkeepsie, NY 12601

BQ Energy supports the Lets Share the Sun Foundation.

-----Original Message-----
From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Thursday, May 4, 2017 12:45 PM
To: Paul Curran <paul.curran@bqenergy.com>
Cc: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport <john.reichert@navy.mil>; Pascual, Beth A CIV NAVFAC LANT, PW64 <beth.pascual@navy.mil>; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport <daniel.l.sullivan3@navy.mil>; Breckner, John K CIV NAVFAC MIDLANT, PW <john.breckner@navy.mil>; Paine, Fred <Fred.Paine@nationalgrid.com>; Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Dion, Thomas <Thomas.Dion@nationalgrid.com>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Hi Paul
I would like to have some sort of conference call or meeting in the near future to discuss this project if possible Jeff

Jeffrey Dunham
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Providence, RI 02907
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401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [mailto:daniel.l.sullivan3@navy.mil]
Sent: Wednesday, May 03, 2017 5:37 PM
To: Dunham, Jeffrey B.
Cc: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paul Curran
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Hi Jeff,

Probably best that you work through the contractor, BQ, to arrange a meeting. We are working our questions through them, and they are managing, what will be, the construction project.

I am CCing their project lead, Paul Curran.

Regards,
Dan

Daniel L. Sullivan, P.E.

Asset Management Branch Head
NAVFAC Mid-Atlantic
Naval Station Newport
Public Works Department, Code PRR12
1 Simonpietri Drive
Newport, RI 02841

daniel.l.sullivan3@navy.mil
Comm: (401) 841-7619
DSN: 841-7619
Fax: (401) 841-2816

Your opinion is important to me! Please take a moment to provide feedback via the comment card at the link below:
https://ice.disa.mil/index.cfm?fa=card&sp=113004&s=499&dep=*DoD&sc=5

-----Original Message-----
From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Friday, April 28, 2017 11:24 AM
To: Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
Cc: Pascual, Beth A CIV NAVFAC LANT, PW64; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport
Subject: [Non-DoD Source] Re: EXT || RE: NAVSTA Newport CHP meeting

Thanks Jim
Looks like Wednesday the 10th will work better for Ngrid

> On Apr 28, 2017, at 10:33 AM, Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
<james.f.carlson1@navy.mil> wrote:
>
> Hi Jeff,
>
> I sent your request to primary Navy POCs for this project (on CC line). We will get back to you soon.
>
> Thanks//
> Jim
>
>
>
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> From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
> Sent: Friday, April 28, 2017 10:17 AM
> To: Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
> Subject: [Non-DoD Source] RE: EXT || RE: NAVSTA Newport CHP meeting
>
> Hi Jim
> What is your availability on the two days below
>
> Jeffrey Dunham
> Certified Energy Manager
> LEED Accredited Professional (AP)
> National Grid
> 280 Melrose St.
> Providence, RI 02907
> 401-784-7638 Office
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> 315-460-8954 Fax
>
>
> -----Original Message-----
> From: Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
> [mailto:james.f.carlson1@navy.mil]
> Sent: Friday, April 28, 2017 10:16 AM
> To: Dunham, Jeffrey B.
> Subject: EXT || RE: NAVSTA Newport CHP meeting
>
> Welcome back, look forward to seeing you again.
>
> -----Original Message-----
> From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
> Sent: Friday, April 28, 2017 9:57 AM
> To: Ferris, Gerald Jr; Jim Falsetti; Paul Curran; naveen kapur;
> Afonso, Jacques R.; Dion, Thomas; Reichert, John C CIV NAVFAC MIDLANT,
> PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
> Cc: Kennedy, John C.; Paine, Fred; Smith, Harmony
> Subject: [Non-DoD Source] NAVSTA Newport CHP meeting
>

> Jim/John
> I have taken over responsibility for this CHP project. Hope all is well and am looking forward to working with you once again.
>
> Folks
> I think it would be best to get together and talk this project through to determine who has what for action items and get everyone's questions and concerns on the table. I spoke to Jim Falsetti and he can come to the Navy base for a meeting on Tuesday May 9th at 1PM or Wednesday May 10th at any time. I would plan on a 2 hour time frame for the meeting.
> Please let me know your availability below for these two days
>
>   5/9 1PM   5/10 time?
> Jeff Dunham   1PM   9 till 3
>
> Jim Falsetti   1PM   9 till 3
>
> Jim Carlson
>
> John Reichert
>
> Jed Ferris
>
> Tom Dion
>
> Jacques Afonso
>
> Naveen Kapur
>
> Paul Curran
>
> Jeffrey Dunham
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> From: Ferris, Gerald Jr
> Sent: Thursday, April 27, 2017 5:16 PM
> To: Jim Falsetti
> Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
> Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
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> Hi Jim,
>
> I will pass along your questions to our gas growth folks however; it is difficult to answer your questions when there is no real concrete information provided to answer those question, we are talking generalities at this point? The size CHP has not be determined, the amount of gas needed is not really determined nor the pressures needed.
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> I cannot answer your CHP incentive questions either until you give us more information in the form of an energy efficiency study or we hire someone to study your thermal and electric load profiles in conjunction with an actual properly sized CHP.
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>
> Thanks
>
> Jed
>
> Gerald(Jed) Ferris
> NE CHP Program Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
>

> -----Original Message-----
> From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
> Sent: Thursday, April 27, 2017 1:28 PM
> To: Ferris, Gerald Jr
> Cc: Paul Curran; naveen kapur
> Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
>
> Dear Jed,
>
> Thanks for the call earlier this week. We are still moving forward, but have been waiting for more definition from the Navy in order to proceed with the correct base case. In response to our requests, they provided this list of natural gas supply questions.
>
> Please review and call me, and we can sort out next steps from there.
>
> Best,
>
> Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446
>
>
> -----Original Message-----
> From: Paul Curran
> Sent: Thursday, April 27, 2017 12:48 PM
> To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan
> <tim.ryan@bqenergy.com>; Michael McNulty
> <michael.mcnulty@bqenergy.com>
> Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP
>
>
>
> Paul F Curran, PE
> Managing Director BQ Energy llc
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> Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking
> on the appropriate link)
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>
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> You may report the matter by contacting us via our UK Contacts
> Page<http://www2.nationalgrid.com/contact-us/> or our US Contacts
> Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking
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You may report the matter by contacting us via our UK Contacts Page<http://www2.nationalgrid.com/contact-us/> or our US Contacts Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking on the appropriate link)

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 5/5/2017 2:42:27 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

I am in the field all day so just let me know what time.

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Friday, May 05, 2017 10:20 AM
To: Dion, Thomas; Ferris, Gerald Jr; Afonso, Jacques R.
Cc: Jim Falsetti; Michael McNulty; Paul Curran; Paine, Fred
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Folks
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Thanks

Jeffrey Dunham
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Providence, RI 02907
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401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Paul Curran [mailto:paul.curran@bqenergy.com]
Sent: Thursday, May 04, 2017 5:45 PM
To: Dunham, Jeffrey B.
Cc: Jim Falsetti; Michael McNulty
Subject: RE: EXT || RE: NAVSTA Newport CHP meeting - NG meeting

Super.

We are available on Friday afternoon or Monday next week if more convenient.

Paul F Curran, PE
Managing Director
BQ Energy llc

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Cc: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport <john.reichert@navy.mil>; Pascual, Beth A CIV NAVFAC LANT, PW64 <beth.pascual@navy.mil>; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport <daniel.l.sullivan3@navy.mil>; Breckner, John K CIV NAVFAC MIDLANT, PW <john.breckner@navy.mil>; Paine, Fred <Fred.Paine@nationalgrid.com>; Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Dion, Thomas <Thomas.Dion@nationalgrid.com>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>
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I am CCing their project lead, Paul Curran.

Regards,
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Daniel L. Sullivan, P.E.

Asset Management Branch Head
NAVFAC Mid-Atlantic
Naval Station Newport
Public Works Department, Code PRR12
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Newport, RI 02841

daniel.l.sullivan3@navy.mil
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Cc: Pascual, Beth A CIV NAVFAC LANT, PW64; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport
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> Sent: Friday, April 28, 2017 10:16 AM
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> Subject: EXT || RE: NAVSTA Newport CHP meeting
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> PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport
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> Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
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> Sent: Thursday, April 27, 2017 1:28 PM
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> Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP
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> Dear Jed,
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> Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446
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> Sent: Thursday, April 27, 2017 12:48 PM
> To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan
> <tim.ryan@bqenergy.com>; Michael McNulty
> <michael.mcnulty@bqenergy.com>
> Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP
>
>
>
> Paul F Curran, PE
> Managing Director BQ Energy llc
>
> www.bqenergy.com
> office: (845) 473 0300
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> Page<http://www2.nationalgrid.com/contact-us/> or our US Contacts
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> Page<https://www1.nationalgridus.com/ContactUs> (accessed by clicking
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Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 5/10/2017 12:47:36 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: NAVSTA Newport CHP update
Attachments: Newport - Questions for National Grid.docx

We had a conference call on Monday to discuss the attached items as well as some other things. Tom, Jed and myself were on the call. We are going to have a call on Mondays at 11 every two weeks to keep things moving along. Looks like a 2018 project in my opinion
Just an update to demonstrate that the sales rep and not the CHP manager is working the project :)

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Ferris, Gerald Jr
Sent: Thursday, April 27, 2017 5:16 PM
To: Jim Falsetti
Cc: Paul Curran; naveen kapur; Afonso, Jacques R.; Dunham, Jeffrey B.; Paine, Fred; Dion, Thomas; Kennedy, John C.
Subject: RE: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

Hi Jim,

I will pass along your questions to our gas growth folks however; it is difficult to answer your questions when there is no real concrete information provided to answer those question, we are talking generalities at this point? The size CHP has not be determined, the amount of gas needed is not really determined nor the pressures needed.

I cannot answer your CHP incentive questions either until you give us more information in the form of an energy efficiency study or we hire someone to study your thermal and electric load profiles in conjunction with an actual properly sized CHP.

Can I suggest a meeting with our folks and the Navy again to talk about what is needed to take the next step in order for us to answer those attached questions? I have added a few folks to the chain because they all have a stake in helping this project be successful.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, April 27, 2017 1:28 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: DON Questions for NGrid re: NAVSTA Newport CHP

Dear Jed,

Thanks for the call earlier this week. We are still moving forward, but have been waiting for more definition from the Navy in order to proceed with the correct base case. In response to our requests, they provided this list of natural gas supply questions.

Please review and call me, and we can sort out next steps from there.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

-----Original Message-----
From: Paul Curran
Sent: Thursday, April 27, 2017 12:48 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>; Michael McNulty <michael.mcnulty@bqenergy.com>
Subject: FW: DON Questions for NGrid re: NAVSTA Newport CHP

Paul F Curran, PE
Managing Director BQ Energy llc

www.bqenergy.com
office: (845) 473 0300
mobile: (914) 844 0894

47 S Hamilton Street Poughkeepsie, NY 12601

BQ Energy supports the Lets Share the Sun Foundation.

NAVSTA Newport Natural Gas – CHP Scenario

Questions for National Grid

1. DON is considering both firm and non-firm natural gas contract options for their new CHP.
    - DON is considering utilizing the existing Non-Firm Sales Service account currently supplying building 7CC to supply the CHP. DON estimates that the natural gas consumed on that existing account would increase from approximately 140,000 MMbtu/year to 550,000 MMbtu/year.
        i. Does National Grid see any issue with this arrangement?
        ii. Is the existing National Grid natural gas infrastructure outside of the DON fence line sufficient to meet the additional natural gas consumption for the CHP, and if not, who will incur the associated costs for those infrastructure upgrades?
    - Alternatively, if a new account is opened, can National Grid provide a list of all potential natural gas supply tariff options available to the DON for the new natural gas account for the CHP?
        i. Is firm supply through the Gas Cost Recovery (GCR) tariff an option?
        ii. Is the cost of assigned pipeline capacity included in the GCR rate? If not, what is the cost to obtain pipeline capacity?
        iii. Is non-firm supply through the Non-Firm Sales Service tariff an option?
        iv. It is critical that the interruptible gas (non-firm) supply for building 7CC be kept in place. Can National Grid confirm that setting up a new account for the CHP will not affect that account?
    - What are the pros and cons associated with each of the natural gas supply options from National Grid's perspective?
2. The proposed CHP will be dual-fuel capable. Does National Grid have any alternate fuel requirements or incentives for fuel switching during times of curtailment?
3. Can National Grid provide historical curtailment penalty data for NAVSTA Newport?
4. Are there any one time costs associated with setting up a new account for the CHP, if necessary (i.e. account set up fees, departing load charges, permits, etc.)? If so, please provide a complete list and estimated total cost.
5. Who will be responsible for constructing and paying for the natural gas distribution feeder and any other associated costs for connecting the CHP to the on the base? Is there any foreseeable scenario in which DON will be responsible for these costs?
6. National Grid's CHP incentive:
    - When will the developer be notified as to whether the CHP incentive has been granted?
    - Does the CHP need to break ground or be in commercial operation by a certain date in order to receive the incentive?
    - Are there any stipulations that the DON and the developer should be aware of that could encumber eligibility of the CHP incentive?
7. The DON is currently on the "Large Demand G-62" tariff for electricity. Will the DON electricity tariff change due to reduced electricity consumption as a result of the CHP project?
8. What state and federal permits or environmental compliance costs are required to construct and operate a CHP in the state of Rhode Island?

Message

From: Jeffrey.Dunham@nationalgrid.com [Jeffrey.Dunham@nationalgrid.com]
on behalf of jeffrey.dunham@nationalgrid.com [jeffrey.dunham@nationalgrid.com]
Sent: 5/16/2017 7:52:08 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: Re: Newport Navy CHP May 8th meeting notes and action items

I agree

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> I am a little concerned this might not pass the BCR without running through the summer super peak items. We really need to get some numbers out of them for cost, kwhr saved, therms consumed and recovered.
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> **From:** Dunham, Jeffrey B.
> **Sent:** Tuesday, May 16, 2017 10:13 AM
> **To:** Jim Falsetti
> **Cc:** Paul Curran; naveen kapur; Ferris, Gerald Jr; Dion, Thomas; Afonso, Jacques R.; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paine, Fred
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Folks if I missed anything feel free to comment

Jeff

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From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, April 25, 2017 2:36 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.
Subject: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

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Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com>
Subject: Newport Navy CHP/Gas Consumption for the Taurus 70

Hey folks,

I have not heard from you guys in a while. Where does this project sit? Are we moving forward?

Have you narrowed down the size? Can you provide the Energy Efficiency calculations to us?

Let us know the timeline for next steps if possible.

Thanks

Jed

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From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed – sorry for the delay – attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navy's current steam boiler consumption. Best,

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From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

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Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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> Gerald.ferris@nationalgrid.com
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> **From:** Dunham, Jeffrey B.
> **Sent:** Tuesday, May 16, 2017 10:13 AM
> **To:** Jim Falsetti
> **Cc:** Paul Curran; naveen kapur; Ferris, Gerald Jr; Dion, Thomas; Afonso, Jacques R.; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paine, Fred
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Sent: Tuesday, April 25, 2017 2:36 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.
Subject: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

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Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 5/19/2017 8:03:03 PM
To: Afonso, Jacques R. [jacques.afonso@nationalgrid.com]
Subject: RE: Newport Navy CHP May 8th meeting notes and action items

He has not sent an invite yet no worries if you cannot make it
How are you making out on gathering the requested data

Jeffrey Dunham
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National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Afonso, Jacques R.
Sent: Friday, May 19, 2017 2:40 PM
To: Dunham, Jeffrey B.
Subject: RE: Newport Navy CHP May 8th meeting notes and action items

Hey Jeff,
I don't see a meeting invite yet and I know it's a pain to coordinate with so many folks but Monday at 1 is the Tim Horan Town Hall. Hopefully we can get a different time/date.
Regards,
Jacques

Jacques R Afonso
Manager, Community & Customer Management, RI
nationalgrid
280 Melrose Street
Providence, RI 02907
Office:401-784-4320
Mobile:401-447-5789
E-mail:Jacques.Afonso@nationalgrid.com

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Sent: Tuesday, May 16, 2017 10:13 AM
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed – sorry for the delay – attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navy's current steam boiler consumption. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

An estimate of Taurus 70 performance is shown below. I would think for the gas company they are most concerned with maximum gas requirements during the winter when their system is the most stressed. The maximum capacity of the turbine at 0 degrees OAT is shown below (data from Solar Turbines) and the fuel consumption on a lower heating value basis is ~84.21 mmbtu/hr.

As far as the duct burner, we were looking at duct firing ad additional 40 klb/hr of steam with the Taurus 70. This equates to an additional ~ 40-41 mmbtu/hr fuel input on an LHV basis.

Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Jim, please make sure that NGRID does not add the existing boiler gas consumption to the CHP gas consumption. This is because when the turbine is operating, in most instances, the boilers will not be required to operate. The Navy may however put one, or more, of their boilers in hot standy, which will increase the gas consumption slightly

Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 6/5/2017 4:57:01 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
Subject: FW: Newport Navy CHP May 8th meeting notes and action items
Attachments: G62_RIPUC_2141.pdf; rigas_tariff.pdf

FYI see attached and below

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Afonso, Jacques R.
Sent: Monday, June 05, 2017 11:38 AM
To: Dunham, Jeffrey B.
Subject: RE: Newport Navy CHP May 8th meeting notes and action items

Hi Jeff,
I haven't heard back (from Billing Ops Cust Rate & Tax Model) regarding the historical curtailment penalties for the Navy Account. This is the group that has typically been involved with the curtailment penalty communication.

Here is the other information…

https://www9.nationalgridus.com/narragansett/business/rates/rates.asp
https://www.nationalgridus.com/RI-Home/Bills-Meters-and-Rates/

Gas Rates (attached pdf)
https://www.nationalgridus.com/media/pdfs/billing-payments/rigas_tariff.pdf

Electric G62 Rate (attached pdf)
https://www9.nationalgridus.com/non_html/G62_RIPUC_2141.pdf

Regards,
Jacques

Jacques R Afonso
Manager, Community & Customer Management, RI
nationalgrid
280 Melrose Street
Providence, RI 02907
Office:401-784-4320
Mobile:401-447-5789
E-mail:Jacques.Afonso@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Tuesday, May 16, 2017 10:13 AM
To: Jim Falsetti
Cc: Paul Curran; naveen kapur; Ferris, Gerald Jr; Dion, Thomas; Afonso, Jacques R.; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paine, Fred
Subject: Newport Navy CHP May 8th meeting notes and action items

Discussion

- Firm gas service proposed for the CHP
- Existing non-firm gas service to stay in place
- Cost associated with the new gas service will be determined once the gas loads and hours of operation are confirmed
- CHP will be privately owned and the gas account will not be in the Navy's name
- Jim and Jeff will be the point of contact for all correspondence
- CHP will not operate during the summer months there is no thermal load

Action items
Jaques Afonso to provide Jeff historical curtailment penalty data for Navy Account
Jaques Afonso to provide Jeff a copy of the firm gas rates and also the electric G62 rate
Jeff Dunham to determine if the 5% energy efficiency reduction has been accomplished
Jim Falsetti to provide Jeff load profile by month and hours of operation
Jim Falsetti will send out an outlook invite to all parties for a standing meeting every other Monday at 1, next conference call should be on Monday May 22nd (invite still needs to be sent out to folks)

Folks if I missed anything feel free to comment

Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, April 25, 2017 2:36 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.
Subject: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

Jed, we are still going forward. I think our last communication was on natural gas availability, and determining the gas situation was necessary before we went on to next steps. I believe we sent the consumption information. Do you require more information in order to provide an update on the gas availability at the site? Best

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Tuesday, April 25, 2017 2:22 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com>
Subject: Newport Navy CHP/Gas Consumption for the Taurus 70

Hey folks,

I have not heard from you guys in a while. Where does this project sit? Are we moving forward?

Have you narrowed down the size? Can you provide the Energy Efficiency calculations to us?

Let us know the timeline for next steps if possible.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

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From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

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Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
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Hope this helps

Have a great weekend

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R.I.P.U.C. No. 2141
Sheet 1
Canceling R.I.P.U.C. No. 2136

THE NARRAGANSETT ELECTRIC COMPANY
OPTIONAL LARGE DEMAND RATE (G-62)
RETAIL DELIVERY SERVICE

AVAILABILITY

Electric delivery service shall be taken under this rate for all purposes by any customer who is placed on the rate by the Company in accordance with this paragraph. This rate is optional for any customer who has a 12-month maximum Demand of 5,000 kW or greater.

If electricity is delivered through more than one meter, except at the Company's option, the Monthly Charge for service through each meter shall be computed separately under this rate. If any electricity is delivered hereunder at a given location, then all electricity delivered by the Company at such location shall be delivered hereunder.

This rate will apply to customers who receive incentive payments for the installation of non-emergency generation configured to provide Combined Heat and Power ("CHP") through the Company's approved Energy Efficiency Plan after the effective date of this tariff, and who would otherwise be eligible to receive service on Optional Large Demand Back-up Service Rate B-62.

This rate is also available to customer accounts associated with Eligible Net Metering Systems, as defined in R.I Public Laws of 2011, Chapters 134 and 147, who are therefore exempt from the backup service rates. However, any customer exempted from the backup service rates under this provision shall nevertheless be required to install metering pursuant to the backup service tariff that shall provide information on the operation of the generation unit.

MONTHLY CHARGE

The Monthly Charge will be the sum of the Retail Delivery Service Charges set forth in R.I.P.U.C. No. 2095, Summary of Retail Delivery Rates.

PEAK, SHOULDER AND OFF-PEAK PERIODS

PEAK HOURS:	June - September	-- 8 a.m. - 10 p.m. Weekdays,
	December - February	-- 7 a.m. - 10 p.m. Weekdays
	October – November and March - May	-- 8 a.m. - 9 p.m. Weekdays

R.I.P.U.C. No. 2141
Sheet 2
Canceling R.I.P.U.C. No. 2136

THE NARRAGANSETT ELECTRIC COMPANY
OPTIONAL LARGE DEMAND RATE (G-62)
RETAIL DELIVERY SERVICE

OFF-PEAK HOURS: All other hours

Weekdays shall mean Monday through Friday, excluding the following holidays: New Year's Day, President's Day, Memorial Day, Independence Day, Columbus Day (observed), Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day.

RATE ADJUSTMENT PROVISIONS

Transmission Service Charge Adjustment

The prices under this rate as set forth under "Monthly Charge" may be adjusted from time to time in the manner described in the Company's Transmission Service Cost Adjustment Provision.

Transition Charge Adjustment

The prices under this rate as set forth under "Monthly Charge" may be adjusted from time to time in the manner described in the Company's Non-Bypassable Transition Charge Adjustment Provision.

Standard Offer Adjustment

All Customers served on this rate must pay any charges required pursuant to the terms of the Company's Standard Offer Adjustment Provision, whether or not the Customer is taking or has taken Standard Offer Service.

Energy Efficiency Programs

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's Energy Efficiency Program Provision as from time to time effective in accordance with law.

Infrastructure, Safety and Reliability Provision

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's Infrastructure, Safety and Reliability Provision as from time to time effective in accordance with law.

Customer Credit Provision

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's Customer Credit Provision as from time to time effective in accordance with law.

LIHEAP Enhancement Plan Provision

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's LIHEAP Enhancement Plan Provision as from time to time effective in accordance with law.

Revenue Decoupling Mechanism Provision

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's Revenue Decoupling Mechanism Provision as from time to time effective in accordance with law.

R.I.P.U.C. No. 2141
Sheet 3
Canceling R.I.P.U.C. No. 2136

THE NARRAGANSETT ELECTRIC COMPANY
OPTIONAL LARGE DEMAND RATE (G-62)
RETAIL DELIVERY SERVICE

Net Metering Provision and Qualifying Facilities Power Purchase Rate

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's Net Metering Provision and Qualifying Facilities Power Purchase Rate as from time to time effective in accordance with law.

Pension Adjustment Mechanism Provision

The amount determined under the preceding provisions shall be adjusted in accordance with the Company's Pension Adjustment Mechanism Provision as from time to time effective in accordance with law.

STANDARD OFFER SERVICE

Any Customer served under this rate who is eligible for Standard Offer Service shall receive such service pursuant to the Standard Offer Service tariff.

DEMAND

The Demand for each month under ordinary load conditions shall be the greatest of the following:

a) The greatest fifteen-minute peak occurring in such month during Peak hours as measured in kilowatts,
b) 90% of the greatest fifteen-minute peak occurring in such month during Peak hours as measured in kilovolt-amperes,
c) 75% of the greatest Demand as so determined above during the preceding eleven months, and
d) 10 kilowatts.

Any Demand established during the Scheduled Maintenance Period, as defined below, will not be considered during billing periods subsequent to the Scheduled Maintenance Period in the calculation of c) above.

OPTIONAL DETERMINATION OF DEMAND

A Customer who has been served hereunder for one year or more may upon written request have the Demand for each month, beginning with the next month after such request and running for a period of not less than two consecutive months, be based upon the greatest of items (a), (b) and (d) above. In such case, the Distribution Charge per kW, the Transmission Charge per kW and the Transmission per kWh will be increased by 20% during any such period.

COMBINED HEAT AND POWER ("CHP") PROVISIONS

Minimum Demand

Customers who receive an incentive payment for the installation of a CHP non-emergency generation unit through the Company's Energy Efficiency Program after the effective date of this tariff will be subject to a monthly Minimum Demand Charge. For Customer's subject to this CHP Minimum Demand Provision, the monthly Demand

THE NARRAGANSETT ELECTRIC COMPANY
OPTIONAL LARGE DEMAND RATE (G-62)
RETAIL DELIVERY SERVICE

will be the greater of:

a) the Demand as determined above; or

b) the Minimum Demand, which shall be 50% of the greatest fifteen-minute reading from the Customer's generation meter(s) as measured in kilowatts during peak hours;

The Customer Charge, Transmission Demand Charge, all per kWh charges and any other applicable charges and credits will be in addition to the Minimum Demand Charge.

Scheduled Maintenance

Customers may, at their option, request one annual Scheduled Maintenance Period which may occur during no more than five (5) consecutive week-days during the months of April, May, October and November. This request must be submitted to the Company in writing at least 30 days in advance, and must specify the exact dates and duration of the Scheduled Maintenance Period. The Company will notify the Customer in writing within five (5) business days of receiving the Customer's request whether the Scheduled Maintenance Period is acceptable. Meter readings during this Scheduled Maintenance Period will be used in determining the Customer's Demand for the current month, but will not be used during subsequent billing periods for purposes of determining Demand (See Demand above).

Metering Requirements

The Customer shall permit the Company to install meter(s) on the Generation Units providing electricity to the Customer, for purposes of billing under the terms of this rate. The meter shall be in accordance with the Company's reasonable specifications. The Customer will reimburse the Company for the installed cost of the meter and any associated equipment. The Customer shall provide reasonable access to the Company during normal business hours to read such meter in order to bill the Customer for service under this rate.

CREDIT FOR HIGH VOLTAGE DELIVERY

If the Customer takes delivery at the Company's supply line voltage, not less than 2,400 volts, and the Company is saved the cost of installing any transformer and associated equipment, a credit per kilowatt of billing demand for such month shall be allowed against the amount determined under the preceding provisions. See R.I.P.U.C. No. 2095, Summary of Retail Delivery Rates

An additional credit per kilowatt of the billing demand for such month shall also be allowed if said customer accepts delivery at not less than 115,000 volts, and the Company is saved the cost of installing any transformer and associated equipment. See R.I.P.U.C. No. 2095, Summary of Retail Delivery Rates

The total amount of the credit allowed under this provision shall not exceed the sum of the Customer Charge, the Distribution Charge per kW and the Distribution Charge per kWh.

HIGH-VOLTAGE METERING ADJUSTMENT

The Company reserves the right to determine the metering installation. Where service is metered at the Company's supply line voltage, in no case less than 2400 volts, thereby saving the Company transformer losses, a

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Sheet 5
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THE NARRAGANSETT ELECTRIC COMPANY
OPTIONAL LARGE DEMAND RATE (G-62)
RETAIL DELIVERY SERVICE

discount of 1% will be allowed from the amount determined under the preceding provisions.

SECOND FEEDER SERVICE

Except as provided below, Customers receiving second feeder service shall pay a charge per 90% of KVA of reserved second feeder capability. See R.I.P.U.C. No. 2095, Summary of Retail Delivery Rates. The charge for second feeder capability shall apply only to Customers with second feeder capability installed on or after May 1, 1998. The charge for second feeder capability shall not apply to Customers taking service within the Capital Center of Providence or within the downtown Providence underground network system. The Company's Construction Advance Policy 3 shall apply to determine any advance contribution by the customer, using an estimate of revenues to be derived from this second feeder rate. The Company reserves the right to decline second feeder service for engineering reasons.

An additional charge per 90% of KVA of reserved second feeder capability equal to the credit for high voltage delivery for customers taking service at not less than 2400 volts shall be charged if an additional transformer is required at the Customer's facility. See R.I.P.U.C. No. 2095, Summary of Retail Delivery Rates

GROSS EARNINGS TAX

A Rhode Island Gross Earnings Tax adjustment will be applied to the charges determined above in accordance with Rhode Island General Laws.

GROSS EARNINGS TAX CREDIT FOR MANUFACTURERS

Consistent with the gross receipts tax exemption provided in Section 44-13-35 of Rhode Island General Laws, eligible manufacturing customers will be exempt from the Gross Earnings Tax to the extent allowed by the Division of Taxation.

Eligible manufacturing customers are those customers who have on file with the Company a valid certificate of exemption from the Rhode Island sales tax (under section 44-18-30(7) of Rhode Island General Laws) indicating the customer's status as a manufacturer. If the Division of Taxation (or other Rhode Island taxing authority with jurisdiction) disallows any part or all of the exemption as it applies to a customer, the customer will be required to reimburse the Company in the amount of the credits provided to such customer which were disallowed, including any interest required to be paid by the Company to such authority.

TERMS AND CONDITIONS

The Company's Terms and Conditions in effect from time to time, where not inconsistent with any specific provisions hereof, are a part of this rate.

THE NARRAGANSETT ELECTRIC COMPANY

d/b/a NATIONAL GRID

Rhode Island Public Utilities Commission Tariff

RIPUC NG-GAS No. 101

THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
RIPUC NG-GAS No. 101

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- Schedule A: Distribution Adjustment Charge Clause

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GENERAL TERMS AND CONDITIONS

1.0 APPLICABILITY:

The following terms and conditions shall apply to and be a part of each Rate Classification now or hereafter in effect except as they may be expressly modified or superseded by Rhode Island Public Utilities Commission order.

2.0 RATES AND TARIFFS:

The Company furnishes natural gas service under rates and/or special contracts (Schedule of Rates) promulgated in accordance with the provisions of the Rhode Island General Laws and the regulations of the Rhode Island Public Utilities Commission ("PUC") and the Rhode Island Division of Public Utilities and Carriers ("Division"), all as may be in effect from time to time. Such Schedule of Rates, which includes these Terms and Conditions, is available for public inspection during normal business hours at the administrative offices of the Company and at the offices of the PUC and the Division or on the Company's website.

The Schedule of Rates may be revised, amended, supplemented or supplanted in whole or in part from time to time according to the procedures provided in the General Laws and the PUC regulations. When effective, all such revisions, amendments, supplements or replacements will appropriately supersede the present Schedule of Rates. In case of conflict between these Terms and Conditions and any orders or regulations of the PUC or the Division, said orders or regulations shall govern.

The provisions of these Terms and Conditions apply on a non-discriminatory and non-preferential basis to all persons, partnerships, corporations or others (hereinafter customers or the customer) who obtain natural gas distribution service from the Company pursuant to the Schedule of Rates.

No representative of the Company has the authority to modify orally any provision or rate contained in the Schedule of Rates or to bind the Company to any promise or representation contrary thereto. Any such modification to the Schedule of Rates or these Terms and Conditions shall be in writing and made in accordance with the provisions of the General Laws and pursuant to regulations of the PUC and Division.

The Company will advise all new residential customers as to the least expensive rate available for the service based on the information in our records. Non-residential customers will be advised of the applicable rate based on a review of the available information in our existing records or as a result of a field inspection by the Company when the customer provides information which is inconsistent with Company records. The Customer is responsible for accurately describing its gas burning equipment and updating the Company as changes occur.

GENERAL TERMS AND CONDITIONS

A Customer is entitled to change its customer account from one rate classification to another upon written application to the Company; provided, however that the customer account's use complies with the conditions specified in the requested rate classification. Once an election to change rate classifications has been made by the Customer, the customer account must remain on that rate for a period of not less than twelve months. In cases where the Customer requests a rate reclassification, no rebate will be granted for service rendered during the period the customer account was served under the previous rate classification, except in instances where the previous rate classification was due to an error by the Company.

3.0 OBTAINING SERVICE FROM THE COMPANY:

The Company shall furnish service to applicants under the filed rates and in accordance with these Terms and Conditions and the rules and regulations of the PUC and Division. The furnishing of service and acceptance by the customer constitutes a contract under these provisions. The Company may require at least one person on behalf of all parties who will receive service to sign an application or contract. Application for gas service within the territory served by the Company will be received through any duly authorized representative of the Company.

The Company may accept oral or written application for residential service. Residential service may commence upon receipt by the Company of oral application, except that the Company reserves the right to require residential customers to show identification and proof of residency before commencing service. If residential service is commenced upon the receipt of oral application, then all residents at that address who have attained the age of majority may choose to execute a written application, thereby becoming parties to the contract. Non-residential service may commence upon oral application for an interim period pending the receipt of a duly executed written application and security deposit.

The Company reserves the right to refuse service, at any location, to an individual who is indebted to the Company for any service not in dispute before the Division, furnished to such individual at any location, or to such applicant or customer under another name. The Company will commence service if a reasonable payment plan for said indebtedness made in accordance with PUC and Division regulations is agreed to by the Customer and the Company. The Company reserves the right to refuse service to any non-residential applicant who has not paid a deposit as required by the Company.

A Customer shall be and remains the customer of record and shall be liable for service taken until such time as the Customer requests termination of service and a final meter reading is recorded by the Company. The bill rendered by the Company based on such final meter reading shall be payable upon receipt. Such meter reading and final bill shall not be unduly

GENERAL TERMS AND CONDITIONS

delayed by the Company. In the event that the Customer of record fails to give notice of termination of service to the Company or fails to provide access to the meter, the customer of record shall continue to be liable for service taken until the Company either disconnects the meter or a new party becomes a customer of the Company by taking service at such service location. Failure to make application for service shall not relieve a party from the obligation to apply and/or pay for service previously used.

The Company shall undertake to furnish service to the Customer for use only for his/her own purposes and only on the premises occupied through ownership or lease by the Customer, except as provided below. In cases where the Customer is a condominium association or the owner or manager of a commercial or residential rental property with over six (6) units, the Customer may allocate the Company charges for gas service to other gas users on the premises through any reasonable means, including properly installed submetering. In such situations where the Customer is allocating the Company charges for service to others, the burden is on the Customer, when requested by the Company, to demonstrate that the allocated charges are no greater than the Customer's bill from the Company. When allocating such charges, the Customer may separately include reasonable administrative fees. Natural gas sold by the Company to authorized natural gas vehicle filling stations may be re-metered or submetered by the Customer for resale to another or others.

On an annual basis the Company may notify all customers that if they are the owners of property and their tenants move out, the owner must provide written notification in advance that he/she wants gas left on at that premises in his/her name. If the Company does not receive advance written notice, the service may be terminated, and the Company will not be liable for any damages to the premises resulting from the termination of gas service.

3.1 BILLING TERMINATION ("Soft-Off"):

The Company and the Division have agreed to participate in a one-year pilot program (the "Pilot") with respect to the Company's "Soft-Off" termination policy, pursuant to a Settlement Agreement between the Company and the Division, as approved by the PUC on May 4, 2012. During the Pilot, where a customer has requested termination of service and an estimated or actual final meter reading is recorded, and the account is not subject to a shut-off order or request, the Company may choose to utilize a "Soft-Off" termination.

In the event of a termination of an account for which there is no unbilled consumption, a landlord may initiate an application for service in the landlord's name at that premises by either oral or written request in accordance with Section 1, Schedule A, Paragraph 3.0 of this tariff; provided however, that in the event of a termination of an account for which there is any unbilled consumption, a landlord may initiate an application for service in the landlord's name only upon providing the Company with a signed authorization. In addition, where the

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landlord has previously provided the Company a signed agreement, the Company may record the landlord as the customer of record for that account without further authorization.

When gas consumption at a premises where a Soft Off termination has been implemented exceeds 13 ccf in a month the Company will send a notification to the premises indicating that service will be terminated pursuant to the PUC's and Division's rules and regulations governing the termination of service if an account is not established.

Once metered gas consumption at that premises exceeds an aggregate of 35 ccf or the account is still in a "Soft-Off" status for a consecutive period of 90 days, whichever occurs first, the Company will commence a termination action for the account, provided however that where such a termination action would affect the statutory and/or termination rights of other gas customers at that location, service will be terminated at the Soft Off premises as soon as the Company is able to accomplish the termination so as not to conflict with the rights provided under the PUC's and Division's rules and regulations governing the termination of service for the other customers.

4.0 SECURITY DEPOSITS:

Security deposits, letters of credit or bonds may be required and taken in accordance with rules and procedures promulgated by the PUC or other body having authority to regulate the Company. The Company reserves the right to refuse service to an applicant who has not paid a deposit as required by the Company. The rate of interest paid on deposits shall be adjusted annually on March 1. The interest rate in effect in any year shall be based on the average rate over the prior calendar year for 10-year constant maturity Treasury Bonds as reported by the Federal Reserve Board.

5.0 SERVICE SUPPLIED:

The Company shall take reasonable care in providing regular and uninterrupted service to its firm customers, but whenever the Company deems that the situation warrants any interruption or limitation in the service to be rendered, such interruption or limitation shall not constitute a breach of the contract, and shall not render the Company liable for any damages suffered thereby by any person, or excuse the customer from further fulfillment of the contract.

The Company may refuse to supply service to loads of unusual characteristics which, in its sole judgment, might adversely affect the quality of service supplied to other customers, the public safety or the safety of the Company's personnel. In lieu of such refusal, the Company may require a customer to install any necessary regulating and protective equipment in accordance with the requirements and specifications of the Company.

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Whenever the estimated expenditures necessary to supply gas to a customer(s) or to resume service to a customer following relocation of Company equipment for reasons other than the needs of the Company shall be of such an amount that the income to be derived from gas service at the applicable rates will, in the opinion of the Company, be insufficient to warrant such expenditure, the Company will require the customer(s) to pay a Contribution in Aid of Construction (CIAC) for meter relocation or for main and service extension. The level of the CIAC will be based on an economic analysis looking at appropriate impacts associated with the capital expenditures. A detailed written cost estimate will be provided to the Customer upon request.

The Company shall make application in a reasonable time for any necessary locations or other street permits required by public bodies for its pipes, mains and other apparatus, and shall not be required to supply service until a reasonable time after such approvals are obtained. The applicant for service shall obtain all other permits, certificates, licenses, easements and the like necessary to give the Company access to the applicant's equipment and to enable its pipes to be connected thereto.

The Customer shall notify the Company in writing before making any significant change in the Customer's gas equipment which would affect the capacity or other characteristics of the Company's facilities required to serve the Customer. The Customer shall be liable for any damage to the Company's property caused by Customer's additional or changed installation if made without prior notification to the Company.

All piping, equipment and apparatus on the premises of the Customer, excepting meters, underground service pipe, and governors, shall be furnished and put in place by the Customer, and shall conform to the requirements and regulations of the Company, and the Company shall not be required to supply gas unless such piping, equipment and apparatus at all times conform to the requirements and regulations of the State, City, and Town ordinances and laws and policies of the Company. The Company shall be under no obligation to make any inspection to ascertain whether the foregoing condition has been conformed with and shall be under no liability for any damages occasioned by any defect in such piping, equipment or apparatus or other property on the premises.

If temporary service is rendered, the customer shall pay the cost of service under the rate plus the cost of installing and removing all equipment and connections.

6.0 INSTALLATION OF METERS:

The Company will furnish, install, connect and maintain such meter(s) as are necessary for metering gas service for Company billing purposes.

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All gas service to be provided under a single service classification to a customer in a building will be rendered through a single meter except in the instances described in (1) and (2) below:

(1) The Company may elect to install more than one meter for gas service provided under a single service classification:

i. when the use of more than one meter is necessary to provide safe gas service;

ii. when the use of more than one meter is required by a municipal ordinance;

iii. when one meter cannot correctly measure the total gas service rendered;

iv. when the characteristics of gas service of the customer are such that at the time the service line was installed there was no single meter commercially available to measure the gas service correctly;

v. when more than one meter is required in order to render proper and reliable gas service without interruption;

vi. in other comparable circumstances where service cannot practically be rendered through a single meter.

Pursuant to (i) through (vi), when more than one meter is installed to measure the gas service of a single customer at a premises or building under a single service classification under the above listed circumstances, the registrations of the meters will be combined under one customer account and the bill computed as if all service had been rendered through a single meter.

(2) At the Customer's written request and at the Customer's expense, the Company will install more than one meter for a building or premises under a single service classification, in which case the quantity of gas supplied through each meter will be measured separately and the bills for each computed separately under the appropriate service classification(s).

Gas service provided to commercial and industrial customers for use by emergency back-up natural gas generators of more than 12 kW shall be separately metered subject to the Company's technical determination that more than one meter is required to correctly measure the total gas service rendered. Should the Company determine that this service be separately metered, the Company will issue a separate

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bill pursuant to a rate schedule applicable for the usage on the separate meter. Otherwise, if so determined by the Company to be technically feasible, the Company shall allow gas usage for emergency back-up natural gas generators to be measured by the Customer's existing meter.

(B) For residential gas services provided pursuant to prior tariff provisions that required that gas service for use by emergency back-up natural gas generators be separately metered and billed, when both meters are served under a single residential service classification, the registrations of the meters will be combined under one customer account and the bill computed as if all service had been rendered through a single meter. Should a residential customer request the removal of one of the meters, the Customer shall bear the cost of removing the meter and the cost of piping through the remaining meter. If the Company, at its sole discretion, decides to remove the additional meter, the Company will bear the cost of the removal of the meter and any piping cost.

7.0 BILLING AND READING OF METERS:

Bills are calculated and rendered on the basis of a customer account which shall have a unique identification number established for the billing of service provided through an individual meter, except for multiple metered customer accounts established pursuant to section (1) of Item 6.0 above, or aggregation pools established pursuant to the Company's Transportation Terms and Conditions, Section 6, Schedule C of the tariff. A single Customer may have more than one customer account.

All bills are due within 25 days from the date of the bill. A late payment charge shall accrue on non-residential bills after 25 days in accordance with regulations of the PUC and Division.

Whenever a check or draft presented for payment of service is not accepted by the institution on which it is written, a returned check charge of $15 applies, per check or draft written. Such returned check charge shall be waived for customers eligible for low-income assistance programs.

The Customer shall be responsible for all charges for distribution and gas service furnished by the Company under the applicable rates as filed from time to time with the PUC, from the time service is commenced until it is terminated.

Annually in August the Company will review the gas consumption of each non-residential firm customer account for the just ended September through August period to determine if any customer account qualifies for a different rate class. If any such customer account does

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qualify for a different rate class based on this billing information, then commencing with the September billing month that customer account will be billed under that new rate class.

Properly authorized representatives of the Company shall have the right to access the Customer's premises at all reasonable times and intervals for the purpose of reading, installing, examining, repairing, replacing or removing the Company's meters, meter reading devices, pipes and other gas equipment and appliances, in accordance with the General Laws, public regulations and Company policy in effect from time to time. The Customer shall be responsible for providing accessibility to the above metering and equipment belonging to the Company.

Readings taken by an automated meter reading device will be considered actual readings for billing purposes.

The Company shall maintain the accuracy of all metering equipment installed pursuant hereto by regular testing and calibration in comparison to recognized standards and in accordance with PUC and Division regulations. A meter shall be deemed to be registering correctly if it appears from examination or test that it does not vary more than two percent (2%) from the standard approved by the Division.

In the event that the Company obtains inaccurate meter readings for any reason or in case any meter shall for any reason fail to register the full amount of gas supplied or the maximum demand of any customer account for any period of time, the amount of the bill of such customer account shall be estimated by the Company from available data. Such estimated bills shall be payable as rendered unless a customer disputes such estimate in accordance with procedures established by the Division.

The Company will notify the Customer whenever it obtains information indicating that gas is being diverted from the customer's service or that the meter has been tampered with. The Customer will be held responsible to the Company for any leakage or other use of gas which may occur beyond the point of the meter installation.

Unless otherwise determined by the Company, all residential premises shall be equipped with a meter that employs Automatic Meter Reading ("AMR") technology utilizing radio frequency transmitters to allow the Company to obtain meter readings remotely. However, residential customers may choose to "opt-out" by having their AMR meter replaced with a non-AMR meter.

Customers who choose to opt-out will be charged an initial fee of $74.00 for the removal of the existing AMR gas meter and the installation of the non-AMR gas meter.

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Customers who choose to opt-out will also be charged a monthly meter reading fee of $13.00 for the non-AMR gas meter. The meter reading fee is applicable to Customers who receive gas and electric service, or receive gas-only service, from the Company. The Company, at its option, may choose to read the non-AMR meter less frequently than once per month. In that case, or if the Company is unable for any reason to read the meter on the regularly scheduled monthly read date, the Company shall make a reasonable estimate of the consumption of gas during those months when the meter is not read, based on available data, and such estimated bills shall be payable as rendered.

A Customer will not be assessed the initial or monthly fee until after the Company has installed the non-AMR gas meter.

Any opt-out Customer who subsequently wishes to have an AMR gas meter re-installed will be charged a "re-installation fee" of $74.00. The re-installation fee will be charged for the removal of the non-AMR gas meter and the installation of the AMR gas meter.

Any Customer electing re-installation will no longer be assessed the special monthly gas meter reading fee after the AMR meter has been re-installed.

8.0 DISCONTINUANCE OF SERVICE:

Subject to the applicable regulations of the PUC and Division, the Company shall have the right to discontinue gas service to the Customer and to remove or disconnect its meters and piping for nonpayment of bills for gas service. The customer shall be responsible for paying the cost of reconnecting gas service if the service is disconnected for nonpayment of bills or a $25 account restoration charge in the case of a turn-on after a shut-off for nonpayment of bills. Such account restoration charge shall be waived for Customers eligible for low-income assistance programs.

The Company reserves the right to disconnect its service at any time without notice or to refuse to connect its service if to its knowledge and in its judgment the Customer's installation has become or is unsafe, defective or in violation of the Company's policies or any ordinances, laws, codes or regulations.

In the event that any action by the Customer or others shall cause a condition in the premises occupied by any customer whereby life or property is endangered, the Company may discontinue service to said premises regardless of the number of occupants or tenants of said premises.

Whenever the Company shall have proof that any customer is diverting and/or stealing service, the Company may discontinue its service to such customer and remove the meter.

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9.0 COMPANY INSTALLATION AND PROPERTY:

All meters, services and other gas equipment owned by the Company shall be and will remain the property of the Company and no one other than an employee or authorized agent of the Company shall be permitted to remove, operate, or maintain, such property. The Customer shall be responsible for all damage to, or loss of, such property unless occasioned by circumstances beyond the Customer's control. Such property shall be installed at points most convenient for the Company's access and service and in conformance with public regulations in force from time to time. The costs of relocating such property shall be borne by the Customer when done at the Customer's request, or for his convenience, or if necessary to remedy any violation of public law or regulation caused by the Customer.

The Company shall provide and maintain the necessary housing, fencing, barriers and foundations for the protection of the equipment to be installed upon the customer's premises. Such space, housing, fencing, barriers and foundations shall be in conformity with applicable laws and regulations and subject to the Company's specifications and approval.

10.0 SUPPLY OF GAS:

The Company shall make every reasonable effort to maintain an uninterrupted supply of gas for all firm customers, but it shall not be liable for loss or damage caused by reason of any interruption or reduction of the supply, or by reason of any abnormal pressure or quality of the gas, whether as a result of accident, labor difficulties, condition of fuel supply, the actions of any public authority, failure to receive any gas for which in any manner it has contracted, the implementation in accordance with good utility practice of an emergency load reduction program by the Company or one with whom it has contracted for a supply of gas, or inability for any other reason beyond the Company's control to maintain normal pressure or quality, or uninterrupted and continuous service.

Whenever the integrity of the Company's system or the supply of gas is believed to be threatened by conditions on its system or upon the systems with which it is directly or indirectly interconnected, the Company may, in its sole judgment, curtail or interrupt gas service or reduce pressure and such action shall not be construed to constitute a default nor shall the Company be liable therefore in any respect. The Company will use reasonable efforts under the circumstances to overcome the cause of such curtailment, interruption or reduction and to resume full performance.

The Company shall be excused from performing under the Schedule of Rates and shall not be liable in damages or otherwise if and to the extent that it shall be unable to do so or prevented from doing so by statute or regulation or by action of any court or public authority having or

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purporting to have jurisdiction in the premises; or by loss, diminution or impairment of gas supply from its suppliers or the systems of others with which it is interconnected; or by reason of storm, flood, fire, earthquake, explosion, civil disturbance, labor dispute, act of God or public enemy, failure of any supplier to perform, restraint by any court or regulatory agency, or any other intervening cause, whether or not similar thereto; the Company shall use reasonable efforts under the circumstances to overcome such cause and to resume full performance.

The foregoing shall not alter the Company's liability under applicable legal standards for damages in the case of its negligent or intentionally wrongful conduct with respect to any act or failure to act by the Company.

11.0 COMPANY LIABILITY:

The Company shall not be liable for any loss or damage resulting from the use of gas or the presence of the Company's appliances and equipment on the customer's premises unless such loss or damage results directly and solely from the Company's negligence.

The Company shall not, in any event except that of its own negligent acts or omissions, be liable to any party for any direct, consequential, indirect or special damages, whether arising in tort, contract or otherwise, by reason of any services performed, or undertaken to be performed, or actions taken by the Company, or its agents or employees, under the Schedule of Rates or in accordance with or required by law, including, without limitation, termination of the customer's service.

The customer assumes full responsibility for the proper use of gas furnished by the Company and for the condition, suitability and safety of any and all equipment on the Customer's premises, or owned or controlled by the Customer which is not the Company's property. The Customer shall indemnify and save harmless the Company from and against any and all claims, expenses, legal fees, losses, suits, awards or judgments for injuries to or deaths of persons or damage of any kind, whether to property or otherwise, arising directly or indirectly by reason of (1) the routine presence in or use of gas from pipes owned or controlled by the Customer; or (2) the failure of the Customer to perform any of his or her duties and obligations as set forth in the Schedule of Rates where such failure creates safety hazards; or (3) the Customer's improper use of gas or gas appliances. Except as otherwise provided by law, the Company shall be liable for damages claimed to have resulted from the Company's conduct of its business only when the Company, its employees or agents have acted in a negligent, or intentionally wrongful manner.

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Actual Base Revenue Per Customer:	The actual base revenue for a rate class for a month divided by the actual number of customers billed for each rate class in the month.
Actual Transportation Quantity:	The quantity of gas actually received during the Gas Day as measured by the metering equipment at the Point(s) of Receipt, adjusted for the applicable Company Fuel Allowance.
Aggregation Pool:	One or more transportation Customer accounts whose gas usage is aggregated into a Marketer's account for operational purposes, including but not limited to nominating, scheduling and balancing gas deliveries to specified Point(s) of Receipt.
AGT Costs:	Advanced Gas Technology program costs as approved by the PUC.
Average Normalized Winter Day Usage:	A Customer's average normal winter day's usage, based on their actual gas usage during the most recent November through March period, adjusted for normal degree days, as approved in the most recent rate case proceeding.
Base Revenue:	Base Revenue is the sum of the customer charge, variable distribution charges and demand charges for firm service rate classes. Base Revenue is net of Gross Earnings Tax (GET).
BTU content factor:	One British thermal unit, i.e., the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit at sixty degrees (60°) Fahrenheit. A Therm is one hundred thousand Btus. The BTU content factor for a given volume shall be calculated by the Company on a seasonal basis at the end of October and the end of April based upon an average of the Transporting Pipeline's prior six-month experience of recorded BTU factors.
Capacity Release Revenues:	Revenues derived from the sale of capacity upstream of the city-gate.
Capacity Exempt Customer:	Any Customer who is the customer of record at a location having a Capacity Exemption.

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Capacity Exemption:	A location having Gas Usage that is not subject to a mandatory pipeline capacity assignment from the Company. Customers are capacity exempt if they (1) elected to retain their Capacity Exemption at a specific location as part of the 1999 revisions to the Company's Business Choice program in Docket RIPUC 2902, (2) receive delivery service on the Company's Non-Firm Sales or Non-Firm Transportation rate schedules, or (3) elected capacity exemption as a New Customer in accordance with Section 6, Transportation Terms and Conditions, Schedule C, Part 1.07.1.
Company Fuel Allowance:	The quantity in Therms (as calculated on a percentage basis) by which the gross amount of gas received for Customer's account at the Point(s) of Receipt is reduced in kind in order to compensate the Company for gas loss and unaccounted for, Company use or similar quantity-based adjustment.
Consumption Algorithm:	A mathematical formula used to calculate a Customer's daily consumption based on the Customer's historical base load and heat use per heating degree day factor.
Critical Day:	Defined as any day where supply resource constraints are expected to adversely impact the operation of the Company's distribution system. A Critical Day may occur under conditions, such as severe cold temperatures, pipeline emergencies, malfunctions or unusual, out-of-season weather conditions.
Customer:	Any party(s) that has obtained service from the Company pursuant to the General Terms and Conditions or pursuant to the Transportation Terms and Conditions.
Daily Index:	The mid-point of the range of prices for the respective New England Citygates as published by Gas Daily under the heading "Daily Price Survey, Midpoint, Citygates, Algonquin citygates" and "Daily Price Survey, Midpoint, Citygates Tennessee/Zone 6 (delivered)" for the relevant Gas Day listed under "Flow date(s)." In the event that the Gas Daily index becomes unavailable, the Company shall apply its daily marginal cost of gas as the basis for this calculation until such time that PUC approves a suitable replacement.

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Deferred Balance:	The difference between incurred costs and revenues received.
Deferred Gas Cost Balance:	The difference between gas costs incurred and gas revenues received.
Dekatherm (Dt):	Ten Therms or one million Btu's (MMBtu).
Design Winter Sales Sendout:	Sales sendout of Residential Non-Heating, Residential Heating, Small C&I, Medium C&I, Large Low and High Load C&I, and Extra Large Low and High Load C&I during November through March based on design winter temperatures.
Division	The Rhode Island Division of Public Utilities and Carriers.
Electronic Bulletin Board (EBB):	An internet web site which allows both the Company and Marketers to electronically post nominations and other transportation-related information.
EDI	Electronic Data Interchange, the system by which the Company and Marketers initiate transactions and share information.
Environmental Response Costs:	All reasonable and prudently incurred costs associated with evaluation, remediation, clean-up, litigation, claims, judgments, insurance recovery (net of proceeds), and settlements arising out of the Company's utility-related ownership, operation, or use of: (1) manufactured gas production and storage facilities and disposal sites where wastes and materials from such facilities were deposited; (2) mercury regulators; and (3) meter disposal. Also included are the reasonable and prudently incurred costs for acquiring plant, property and equipment to facilitate remediation and other appropriate environmental management objectives in connection with the above sites, properties, and activities. The Company will use its best efforts to minimize Environmental Response Costs consistent with applicable regulatory requirements and sound environmental management policies and practices.
Forecasted Daily Usage (FDU):	Customer's estimated daily consumption for the next gas day as

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	calculated by the Company based upon a forecast of heating degree days and the consumption algorithm.
Gas Day:	A period of twenty-four (24) consecutive hours beginning at 10:00 am (EST) and ending at 10:00 am (EST) the next calendar day.
Gas Usage:	The actual quantity of gas used by the Customer as measured by the Company's metering equipment at the Point of Delivery and converted to Therms.
Hedge Collateral:	Funds the Company is required to put up as collateral on hedge positions by an Exchange or counterparty, or funds it receives from an Exchange or counterparty as collateral.
Hedge Collateral Carrying Costs:	For the month being calculated, carrying costs equal the total of the following: (1) For each Exchange or counterparty holding the Company's collateral, the monthly short term borrowing rate defined as the Company's money pool rate, times the average hedge collateral daily balance for the month divided by 12. Less (2) for each Exchange or counterparty where the Company holds their collateral, the monthly short term borrowing rate times the average hedge collateral daily balance for the month divided by 12. Less (3) any interest paid to the Company by the Exchange or counterparty on the collateral funds it holds. The Company will recover carrying costs from customers or credit customers for carrying costs through the Gas Adjustment. In the event the Company chooses to meet its collateral obligations by posting a letter of credit or other non-cash instrument, the carrying cost will be the direct costs of the letter of credit or alternative non-cash instrument.
Imbalance:	The difference between the Actual Transportation Quantity and Gas Usage.
Interest on Deferred Balance:	Interest revenue/expense required to finance the deferred balance based on the Bank of America Prime Rate less 200 basis points (2%) as in effect from time to time.

DEFINITIONS

Inventory Finance Charge:	Finance charges associated with the storage of natural gas as calculated using a working capital calculation.
Local Storage Costs:	Costs associated with the investment, operations and maintenance of natural gas storage downstream of the city-gate.
Low Income Assistance Programs:	Programs for assisting low income customers with their energy bills including, but not limited to, Low Income Heating Assistance (LIHEAP) and Low Income Weatherization, as in effect from time to time.
Marginal Gas Cost:	The variable cost of the Company's marginal source of supply for the Gas Day. Incremental Cost is a synonymous term.
Marketer:	An entity meeting the eligibility requirements of Section 6 Schedule C, Item 5.03 that is designated in a Transportation Service Application by the Customer to act on its behalf for nomination, notification, scheduling, balancing and receipt of communications, and which has executed a Marketer Aggregation Pool Service Agreement. A Customer may designate itself as the Marketer provided that they have an executed service agreement with the Transporting Pipeline or provide proof of contract to purchase the gas at the Company's city gate.
Maximum Daily Quantity:	The maximum quantity of gas a customer is authorized to use during the gas day.
Monthly Index:	The simple average of the Daily Indices for the applicable month.
Net Insurance Recoveries:	Proceeds recovered from insurance providers and third parties for Environmental Response Costs, less the cost of obtaining such proceeds through claims, settlements, and litigation.
New Customer:	A Customer taking a supply of gas at a new Point of Delivery that has not been previously served by the Company.
Non-Firm Customer:	A customer who receives service under the Company's Non-Firm rate service.

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Non-Firm Transportation Margin:	Margins derived from the transportation of natural gas to non-firm customers downstream of the city gate.
Off-System Sales Margins:	Margins derived from the sale of natural gas upstream of the city-gate.
Operational Flow Order:	The Company's instruction to Marketers and/or Customers to take such action as conditions require, including, but not limited to, diverting gas to or from the Company's distribution system pursuant to Section 6, the Transportation Terms and Conditions, Schedule C, Item 1.04.2.
Peak Day Use:	The estimated use of a customer on the forecasted Gas Day during which the Company's system experiences the highest aggregate Gas Usage. It is calculated by estimating the customer's average use on a day when heat is not required (the baseload use) and the average use per degree day (the heating use) based on the customer's historical usage history. In the event the customer's historical usage is unavailable or not representative of expected future use, the Company will evaluate the customer's gas equipment and its projected utilization in order to calculate the customer's estimated use. The Peak Day Use equals the baseload use plus the product of the use per degree day times the design degree day value as approved by the PUC.
Pipeline Costs:	Costs associated with the entitlement and transmission of natural gas on the interstate pipeline system.
Pipeline Shipper(s):	The party(s) from whom a Marketer has purchased gas to be delivered to and transported by the Company.
Point of Delivery:	A location at which the Company's distribution facilities are interconnected with the Customer's facility.
Point(s) of Receipt:	Outlet side of the measuring station at the interconnection between the Transporting Pipeline and the Company's distribution facilities where gas will be received by the Company for transportation service in its service territory.
PUC	The Rhode Island Public Utilities Commission.

DEFINITIONS

Purchased Gas Working Capital:	The working capital required to finance the Company's purchased gas.
Refunds:	Refunds from pipeline, storage and suppliers.
Scheduled Transportation Quantity:	The quantity of gas scheduled by the Marketer to be received by the Company for Customer's account during the Gas Day at the Point of Receipt, including the applicable Company Fuel Allowance.
Service Quality Performance Fund:	Deferred account containing accumulated Service Quality adjustments.
Soft-Off	The termination of an account by the Company for billing purposes where there is no new customer of record and the actual flow of gas to the premises is not disconnected.
Supplier Costs:	Costs associated with the entitlement and purchase of natural gas.
Target Revenue Per Customer:	For the period through January 31, 2013, the target revenue per customer established in Docket 4206, thereafter a target average revenue per customer amount established in the most recent rate case.
Therm:	An amount of gas having a thermal content of 100,000 Btus.
Transportation Imbalance Revenues:	Revenues associated with daily and monthly imbalances for transportation customers, as included in the Company's Terms and Conditions of Firm Transportation.
Transporting Pipeline:	The party(s) engaged in the business of rendering transportation service of natural gas in interstate commerce subject to the jurisdiction of the Federal Energy Regulatory Commission, which are transporting gas for Marketer to a Point of Receipt of the Company.
Upstream Storage Costs:	Costs associated with the entitlement, injection, withdrawal and storage of natural gas upstream of the city-gate.

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Working Capital:	The dollar amounts required to support the Company's activities prior to the receipt of revenue.

TAXES AND SURCHARGES

1.0 RHODE ISLAND GROSS EARNINGS TAX:

Unless otherwise indicated, all rates exclude an amount necessary for the payment of Rhode Island Gross Earnings Tax. An amount necessary for the payment of Rhode Island Gross Earnings Tax will be separately identified on bills rendered to customers.

2.0 GROSS EARNINGS TAX REDUCTION FOR MANUFACTURERS:

Consistent with the gross earnings tax exemption provided in Section 44-13-35 of Rhode Island General Laws, eligible manufacturing customers will be billed the applicable Rhode Island Gross Earnings Tax (GET). The Customer is responsible for providing to the Company in writing its tax exemption number and other appropriate documentation. If the Company collected any taxes or assessments from the Customer and is later informed by the Customer that the Customer is exempt from such taxes, it shall be the Customer's responsibility to obtain any refund from the appropriate governmental taxing agency.

Eligible manufacturing customers are those Customers who have on file with the Company a valid certificate of exemption from the Rhode Island sales tax (under section 44-18-30 (7) of Rhode Island General Laws) indicating the Customer's status as a manufacturer. If the Division of Taxation (or other Rhode Island taxing authority with jurisdiction) disallows any part or all of the exemption as it applies to a Customer, the Customer will be required to reimburse the Company in the amount of the credits provided to such Customer which were disallowed, including any interest required to be paid by the Company to such authority.

The Division of Taxation has indicated that it will generally deem 95% of manufacturer's volumes to be for "manufacturing use" eligible for the reduced manufacturer's Gross Earnings Tax rate. Thus, unless usage is separately metered for manufacturing only, 95% of billed amounts for qualified customers will be deemed to be for manufacturing purposes and eligible for the manufacturer's GET credit, whereas the remaining 5% of the billed amount will be subject to the standard GET rate. If usage is separately metered for manufacturing use only, the entire amount will be subject to the reduced manufacturing GET rate.

No other use of gas will be included in this rate for billing purposes.

3.0 OTHER RHODE ISLAND TAXES:

Where applicable at rate or rates in effect from time-to-time.

TAXES AND SURCHARGES

4.0 ENERGY EFFICIENCY SURCHARGE:

As provided for in Section 39-1-27.7 and Section 39-2-1.2 of Rhode Island General Laws, a charge per dekatherm (Dt) designed to recover the costs of the Company's gas Energy Efficiency Program (EEP).

With the filing of the Company's EEP plan for the upcoming calendar year, the Company will file its EEP per Dt charge on or before October 15 of each year. In any year in which the Company is required to file a triennial Energy Efficiency Procurement plan, the Company will file the EEP Charge by November 1. The EEP Charge shall be effective on the following January 1. The EEP charge will be designed to collect the estimated costs of the Company's EEP plan for the upcoming calendar year plus a full reconciliation of all costs and revenues for the current year including a reconciliation of forecasted revenue and costs for months of the current year for which actual data is not available at the time of the filing. Any projected amounts included in the EEP charge filing are subject to reconciliation to actual amounts and any difference will be reflected in a future EEP charge filing. Upon approval by the PUC, such a charge (adjusted for the uncollectible percentage approved in the most recent rate case proceeding) shall become effective with usage on or after the effective date.

The Company may file to change the EEP charge at any time should significant over- or under-recoveries occur.

GAS COST RECOVERY CLAUSE

1.0 GENERAL:

1.1 Purpose:

The purpose of this clause is to establish procedures that allow the Company, subject to the jurisdiction of the PUC, to annually adjust its rates for firm sales and the weighted average cost of upstream pipeline transportation capacity in order to recover the costs of gas supplies, pipeline and storage capacity, production capacity and storage, purchased gas working capital, and to credit supplier refunds, capacity credits from off-system sales and revenues from capacity release transactions.

The Gas Cost Recovery Clause shall include all costs of firm gas, including, but not limited to, commodity costs, demand charges, hedging and hedging related costs, local production and storage costs and other gas supply expense incurred to procure and transport supplies, transportation fees, inventory finance costs, requirements for purchased gas working capital, all applicable credits, taxes, and deferred gas costs. Any costs recovered through the application of the Gas Charge shall be identified and explained fully in the annual filing.

1.2 Applicability:

The Gas Charge shall be calculated separately for the following rate groups:

(1) Residential Non-Heating, Low Income Residential Non-Heating, Large C&I High Load Factor, Extra Large C&I High Load Factor;
(2) Residential Heating, Low Income Residential Heating, Small C&I, Medium C&I, Large C&I Low Load Factor, and Extra Large C&I Low Load Factor; and
(3) FT-2 Firm Transportation – Marketers.

The Company will make annual Gas Charge filings based on forecasts of applicable costs and volumes and annual Reconciliation filings based on actual costs and volumes. The Gas Charge shall become effective with consumption on or after November 1 as designated by the Company. In the event of any change subsequent to the November effective date which would cause the estimate of the Deferred Gas Cost Balance to differ from zero by an amount greater than five percent (5%) of the Company's gas revenues, the Company may make a Gas Charge filing designed to eliminate that non-zero balance.

Unless otherwise notified by the PUC, the Company shall submit the Gas Charge filings no later than sixty (60) days before they are scheduled to take effect. The Annual Reconciliation filing will be made by July 1 of each year containing actual

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data for the twelve months ending March 31 of that year.

2.0 GAS CHARGE FACTORS

2.1 Gas Charges to Sales Customers:

The Gas Charge consists of two (2) components: (1) Fixed Costs and (2) Variable Costs. These components shall be computed using a forecast of applicable costs and volumes for each firm rate schedule based on the following formula:

$GC_S = FC_S + VC_S$

Where:

GC_S Gas Charge applicable to High Load Factor sales rates (Residential Non-Heating, Low Income Residential Non-Heating, Large and Extra Large High Load C&I) and Low Load Factor sales rates (Residential Heating, Low Income Residential Heating, Small C&I, Medium C&I, Large and Extra Large Low Load C&I).

FC_S Fixed Cost Component for a rate classification. See Item 3.1 for calculation.

VC_S Variable Cost Component for a rate classification. See Item 3.2 for calculation.

This calculation will be adjusted for the uncollectible percentage approved in the most recent rate case proceeding and the Gas Charges to Sales Customers are subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

2.2 Gas Charge to FT-2 Marketers:

The FT-2 Demand Rate (SDC_M) recovers fixed costs associated with storage and peaking resources including pipeline supplies designated by the Company for peaking purposes. See item 3.3 for calculation.

The FT-2 Variable Charges for underground storage components consist of the following:

SLF The Company's weighted average loss factor on storage withdrawals across all storage contracts.

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WWCC — The Company's weighted average commodity cost of storage withdrawals under all storage contracts.

PLF — The Company's weighted average loss factor on pipeline contracts used to deliver storage withdrawals to the system.

PCC — The Company's weighted average commodity cost on pipeline contracts used to deliver storage withdrawals to the system

This calculation will be adjusted for the uncollectible percentage approved in the most recent rate case proceeding and the Gas Charges to Sales Customers are subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

3.0 GAS CHARGE CALCULATIONS

3.1 Supply Fixed Cost Component:

The Supply Fixed Cost Component shall include all fixed costs related to the purchase, storage, or delivery of firm gas, including, but not limited to, pipeline and supplier fixed reservation costs, demand charges, operation and maintenance costs for storage facilities and other fixed gas supply expense incurred to transport or store supplies, transportation fees, and requirements for purchased gas working capital. Any costs recovered through the application of the Supply Fixed Cost Component shall be identified and explained fully in the annual filing.

The Supply Fixed Cost Component is calculated for each applicable rate schedule as follows:

$$FC_S = \frac{DWS_S * (TC_{FC} - TR_{FC} + WC_{FC} + R_{FC} - (SDC_M * MDQ_{SM} * 12))}{Dt_S}$$

Where:

FC_S — Supply Fixed Cost Component for High Load Factor rates (Residential Non-Heating, Low Income Residential Non-Heating, Large High Load C&I and Extra-Large High Load C&I) and Low Load factor rates (Residential Heating, Low Income Residential Heating, Small C&I, Medium C&I, Large Low C&I and Extra Large Low Load C&I).

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DWS_S	Percent of Design Winter Sales Sendout (November - March) for High Load Factor rates (Residential Non-Heating, Low Income Residential Non-Heating, Large High Load C&I and Extra-Large High Load C&I) and Low Load factor rates (Residential Heating, Low Income Residential Heating, Small C&I, Medium C&I, Large Low C&I and Extra Large Low Load C&I).
TC_{FC}	Total Fixed Costs, including, but not limited to pipeline, storage, and supplier reservation and supply related local production and storage costs. The level of supply-related local production and storage costs shall be as determined in the Company's most recent rate case proceeding.
TR_{FC}	Credits to Fixed Costs relating to supply services, including, but not limited Marketer capacity release revenues and the amount forecasted to customers under the Natural Gas Portfolio Management Plan ("NGPMP") for the November to October period.
WC_{FC}	Working Capital requirements associated with Supply Fixed Costs. See Item 5.0 for calculation.
R_{FC}	Deferred Fixed Cost Account Balance as of October 31, as derived in Item 6.0 less the amount guaranteed to customers under the NGPMP and, following approval by the PUC, the net positive revenue from optimization transactions reduced by the guaranteed amount and the Company incentive under the Plan.
SDC_M	FT-2 Storage Demand Charge rate charged to Marketers based on their Maximum Daily Quantity of storage gas. See Item 3.3 for calculation.
MDQ_{SM}	Storage Forecast of Maximum Daily Quantity to be billed to Marketers.
Dt_S	Forecast of annual sales to Residential Non-Heating, Low Income Residential Non-Heating, Residential Heating, Low Income Residential Heating, Small C&I, Medium C&I, Large Low and High Load C&I, and Extra Large Low and High Load C&I.

3.2 Supply Variable Cost Component:

The Supply Variable Cost Component shall include all variable costs of firm gas,

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including, but not limited to, commodity costs, taxes on commodity and other gas supply expense incurred to transport supplies, transportation fees, and requirements for purchased gas working capital, storage commodity costs, taxes on storage commodity and other gas storage expense incurred to transport supplies, transportation fees, inventory commodity costs, and inventory financing costs. Any costs recovered through the application of the Supply Variable Cost Component shall be identified and explained fully in the annual filing.

The Supply Variable Cost Component is calculated for each applicable rate schedule as follows:

$$VC = \frac{TC_{VC} - TR_{VC} + WC_{VC} + R_V + IF_s}{Dt_{VC}}$$

Where:

VC	Supply Variable Cost Component for High Load Factor rates (Residential Non-Heating, Low Income Residential Non-Heating, Large and Extra Large High Load C&I) and Low Load Factor rates (Residential Heating, Low Income Residential Heating, Small C&I, Medium C&I, Large and Extra Large Low Load C&I).
TC_{VC}	Total Supply Variable Costs, including, but not limited to pipeline, supplier, storage, commodity-billed pipeline transition costs, and any hedge, hedging related cost or the carrying cost on hedge collateral.
TR_{VC}	Total Credits to Supply Variable Costs, including, but not limited to balancing commodity charge revenues and transportation imbalance charges.
WC_{VC}	Working Capital requirements associated with Total Supply Variable Costs. See item 5.0 for calculation.
R_V	Deferred Cost Account Balance as of October 31, as derived in Item 6.0 plus the net of any Gas Procurement Incentives/Penalties associated with the Gas Procurement Incentive Plan.
Dt_{VC}	Forecast of annual sales to Residential Non-Heating, Low Income Residential Non-Heating, Residential Heating, Low Income

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Residential Heating, Small C&I, Medium C&I, Large Low and High Load C&I, and Extra Large Low and High Load C&I.

IF_S Inventory Finance Cost as calculated in 4.0 below.

3.3 FT-2 Storage Demand Charge:

The FT-2 Storage Demand Charge (SDC_M) shall include all fixed costs related to the operations, maintenance, and delivery of storage, including, but not limited to, the supply-related portion of local production and storage costs as determined in the most recent rate case proceeding, delivery of storage gas to the Company's Distribution System, Storage Inventory Financing Charges and requirements for purchased gas working capital. Any costs recovered through the application of the Storage Demand Charge shall be identified and explained fully in the annual filing.

The Storage Demand Charge Component is calculated for the FT-2 rate schedule as follows:

$$SDC_M = \frac{TFC_S + IF_S + WC_S}{MDQ_S \text{ X } 12}$$

Where:

SDC_M FT-2 Storage Demand Charge in $/per Maximum Daily Quantity of Storage gas to be charged to Marketers.

TFC_S Total Storage Fixed Costs, equals all fixed costs of storage, including, but not limited to, the supply related portion of local production and storage costs, taxes on storage, any demand or fixed charges associated with storage or delivery of storage gas to the Company's Distribution System, and any demand or fixed pipeline reservation charges designated by the Company as a peaking resource. The level of supply-related local production and storage costs shall be as determined in the most recent rate case proceeding.

IF_S Inventory Finance Cost as calculated in 4.0 below.

MDQ_S The total maximum daily quantity of storage gas in Dekatherms deliverable to the Company's Distribution System using the LNG facilities, storage resources, and pipeline contracts related to storage

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delivery.

WC_{FC} Working Capital requirements associated with Supply Fixed Costs. See Item 5.0 for calculation.

4.0 INVENTORY FINANCING:

$IF_S = (ASB_U + ASB_L) * COC$

Where:

IF_S Inventory Finance Charges for storage

ASB_U Average underground storage balance

ASB_L Average LNG storage balance

COC Weighted Pre-tax Cost of Capital, consisting of three components: Short-term Debt, Long-term Debt, and Common Equity. The Common Equity components shall reflect the rates approved in the most recent rate case proceeding. The Short-term debt component shall be based on the Company's actual short-term borrowing rate for the twelve months ended March as presented in the Company's annual Distribution Adjustment Clause Filing.

5.0 WORKING CAPITAL REQUIREMENT:

$WC_M = WCA_M * [DL / 365] * COC$

Where:

WC_M Working Capital requirements of Supply Fixed (WC_{FC}) and, Storage Fixed (WC_{SFC}), Supply Variable (WC_{SV}), Storage Variable Product (WC_{SVC}) or Storage Variable Non-product (WC_{SVNC}) Cost Components.

WCA_M Working Capital Allowed in the Supply Fixed, Storage Fixed, and Supply Variable, Storage Variable Product, or Storage Variable Non-product Cost component calculations.

DL Days Lag approved in the most recent rate case proceeding.

COC Weighted Pre-tax Cost of Capital, consisting of three components: Short-term

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Debt, Long-term Debt, and Common Equity. The Common Equity components shall reflect the rates approved in the most recent rate case proceeding. The Short-term debt component shall be based on the Company's actual short-term borrowing rate for the twelve months ended March as presented in the Company's annual Distribution Adjustment Clause (DAC) filing in support of the Earnings Sharing Mechanism (ESM). The long-term debt component will be based on the Company's actual long-term borrowing rate as presented in the Company's annual DAC filing.

6.0 DEFERRED GAS COST ACCOUNTS:

The Company shall maintain two (2) separate Deferred Gas Cost Accounts: (1) Fixed Costs and revenues and (2) Supply Variable Costs and revenues. Entries shall be made to each of these accounts at the end of each month as follows:

An amount equal to the allowable costs incurred less:

1. Gas Revenues collected adjusted for the RIGET and uncollectible percentage approved in the most recent rate case proceeding;

2. Credits to costs, including but not limited to GCR Deferred Responsibility surcharge/credits and Transitional Sales Service (TSS) surcharge revenues,

   and including

3. Monthly interest based on a monthly rate of the current Bank of America prime interest rate less 200 basis points (2%), multiplied by the arithmetic average of the account's beginning-of-the-month balance and the balance after entries 1. and 2. above.

7.0 REFUNDS:

Any refund associated with the Company's total gas cost for Sales customers shall be credited to the Deferred Cost Account.

8.0 WEIGHTED AVERAGE UPSTREAM PIPELINE TRANSPORTATION COST:

At the request of a marketer or the Division, the Company will provide within 21 days an estimate of the pipeline path costs for the next GCR year beginning November 1. The estimate will be based on the most recent GCR filing updated for current commodity pricing and other known changes which would significantly affect the factor. Concurrent with the

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annual GCR filing, the Company shall calculate the final weighted average cost of upstream pipeline transportation capacity. The cost shall be applicable to capacity release under the Transportation Terms and Conditions effective November 1 of each year or at such time as the PUC approves the rates.

9.0 DEFERRED GAS COST RESPONSIBILITY:

Under the Transportation Terms and Conditions, Section 6, Schedule C, Item 1.0, if a Customer who has been receiving firm sales service and elects to transfer to transportation service to purchase gas from a Marketer, the Customer is responsible for their portion of the deferred gas cost balance. The calculation of any under-recovered or over-recovered gas cost attributable to the Customer's prior service will be charged or credited to the Customer's account at the time transportation service is initiated.

9.1 Factor Calculations:

The calculation of the Customer's deferred gas cost balance consists of: (1) the prior period deferred gas cost reconciliation amount reflected in the Company's current Gas Charge; and (2) any incremental under-recovery or over-recovery of actual costs versus projected costs that accrue while the current Gas Charge is in effect.

The first component is calculated on the basis of the Company's Gas Charge filing with the PUC in accordance with the following formula:

$$PPF = \frac{DAB_B}{Dt_S}$$

Where:

PPF Prior Period Factor as a $/Dt.

DAB_B Deferred Gas Cost Account Beginning Balance for the first month covered under the Gas Charge filing.

Dt_S Forecast of sales volumes for the period covered by GCC filing.

The second component is calculated on a quarterly basis and represents the additional deferral balance since the balance determined in the Company's last Gas Charge filing. The factor is calculated as follows:

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$$IDF = \frac{DQB_E - PDAB_B}{Dt_a}$$

Where:

IDF — Incremental Deferred Gas Cost Balance Factor as a $/Dt.

DQB_E — Actual Deferred Gas Cost Account Ending Balance for a quarter subsequent to the PPF.

$PDAB_B$ — Projected Deferred Gas Cost Account Ending Balance for the quarter subsequent to the PPF.

Dt_a — Actual sales volumes for the quarter(s) subsequent to the PPF.

9.2 Application of Factors:

The customer's total Deferred Gas Cost Responsibility will equal the sum of the following:

(1) The PPF times: (a) the Customer's prior GCR year's total Dt minus (b) the Customer's current year's Dt where the current GCR year's Dt reflects the period the customer has been billed the current Gas Charge; and

(2) The IDF times the Customer's Dt during the period covered by the IDF.

DISTRIBUTION ADJUSTMENT CLAUSE

1.0 GENERAL

1.1 Purpose:

The purpose of the Distribution Adjustment Clause (DAC) is to establish procedures that allow the Company, subject to the jurisdiction of the PUC, to annually adjust its rates for firm sales and transportation in order to recover, credit, or reconcile the following:

(1) the system pressure costs;
(2) the difference between the approved AGT factor revenue collections and actual AGT factor revenue collections;
(3) the difference between the approved LIAP revenue collected through base rates for Large and Extra Large C&I customers and actual LIAP revenue collections for Large and Extra Large C&I customers;
(4) the costs of the Infrastructure, Safety, and Reliability Plan;
(5) the amortization of the most recent ten years of Environmental Response costs;
(6) Pension costs and Post-retirement Benefits Other than Pensions expenses;
(7) the margins from on-system non-firm sales and non-firm transportation services that are above or below an established dollar amount;
(8) to credit any Service Quality Performance penalties;
(9) any over or under collections of revenue under the Revenue Decoupling mechanism;
(10) the previous year DAC items;
(11) any Earnings Sharing; and
(12) any Arrearage Management costs.

Any costs recovered through the application of the Distribution Adjustment Charge shall be identified and explained fully in the annual Distribution Adjustment Charge filing.

1.2 Applicability:

The Distribution Adjustment Charge will be applied to sales and transportation volumes under each of the Company's firm rate schedules.

The Company will make annual DAC filings and its annual Reconciliation filings based on actual costs and volumes available at the time of filing as well as forecasts of applicable costs and volumes through October of that year. With the exception of the Infrastructure, Safety and Reliability component described in section 3.4.2, the

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Distribution Adjustment Charge shall become effective with consumption as of November 1 each year.

Unless otherwise notified by the PUC, the Company shall submit the Distribution Adjustment Charge filings no later than 90 days before they are scheduled to take effect, provided however that the Revenue Decoupling Adjustment component of the Distribution Adjustment Charge filing will be made July 1 annually. The Annual Reconciliation filing will be made by August 1 of each year.

2.0 DISTRIBUTION ADJUSTMENT CHARGE:

The Distribution Adjustment Charge will consist of an annual System Pressure factor, an Advanced Gas Technology factor, a Low Income Assistance Programs factor, an Infrastructure, Safety, and Reliability factor, an Environmental Response Cost factor, a Pension Adjustment Mechanism factor, a Non-firm On-System Margin Credit factor, a Service Quality Performance factor, a Revenue Decoupling Adjustment factor, and a Reconciliation of deferred account balance factor, an Earnings Sharing Mechanism factor and an Arrearage Management Adjustment Factor ("AMAF"). The Distribution Adjustment Charge is calculated as follows:

DAC = SP+AGT+LIAP+ISR+ERCF+PAF+MC+SQP+RDA+AMAF+R+ESM

Where:

DAC	Distribution Adjustment Charge applicable to all firm throughput.
SP	System Pressure factor. See Item 3.1 for calculation.
AGT	Advanced Gas Technology factor. See Item 3.2 for calculation.
LIAP	Low Income Assistance Programs factor. See Item 3.3 for calculation.
ISR	Infrastructure, Safety, and Reliability factor. See Item 3.4 for calculation.
ERCF	Environmental Response Cost Factor. See Item 3.5 for calculation.
PAF	Pension Adjustment Factor. See Item 3.6 for calculation.
MC	On-system Margin Credits related to Non-Firm Dual-Fuel customer margins. See Item 3.7 for calculation.

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SQP	Service Quality Performance Factor. See Item 3.8 for calculation.
RDA	Revenue Decoupling Adjustment factor. See Item 3.9 for calculation.
R	Reconciliation of deferred account balances as of October 31. See Item 4.0 for calculation.
ESM	Earnings Sharing Mechanism Factor. See Item 5.0 for calculation.
AMAF	Arrearage Management Adjustment Factor. See Item 3.10 for calculation.

The Distribution Adjustment Charge excluding RDA shall be increased by the uncollectible expense percentage approved in the most recent rate case proceeding.

3.0 DISTRIBUTION ADJUSTMENT CALCULATIONS

3.1 System Pressure Factor:

The System Pressure factor shall be computed on an annual basis utilizing a forecast of Liquefied Natural Gas (LNG) sendout comprised of the projected withdrawal of commodity costs, the projected inventory cost of LNG, demand costs and the average LNG inventory finance costs from the GCR filing for the November to October period based on the following formula:

$$SP = \frac{(WTC_{LNG} + INV_{LNG} + DM_{LNG} + INF_{LNG}) \times SP\%}{Dt_T}$$

Where:

SP	System Pressure Amount.
WTC_{LNG}	Forecasted withdrawal commodity costs.
INV_{LNG}	Forecasted inventory cost of LNG.
DM_{LNG}	Forecasted demand costs.
INF_{LNG}	Forecasted inventory finance costs.

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SP%	Percent of local storage used to maintain system pressures, as established in the most recent rate case or DAC proceeding.
Dt_T	Forecasted annual firm throughput.

3.2 AGT Factor:

The Advanced Gas Technology factor will be computed on an annual basis utilizing the approved amount for AGT for the prior twelve month period ended March 31, except for the first reconciliation period after the approval of Docket RIPUC 4323 which will be based on a stub period. The formula will be as follows:

$$AGT = \frac{AGT_B - AGT_{EMB}}{Dt_T}$$

Where:

AGT	AGT Factor
AGT_B	Approved AGT budget
Dt_T	Forecasted annual firm throughput in dekatherms
AGT_{EMB}	AGT funding embedded in base rates, $300,000

3.3 LIAP Factor:

The Low Income Assistance factor shall be computed on an annual basis utilizing the approved funding for low income programs, such as Low Income Heating Assistance and Low Income Weatherization, for the prior twelve month period ended March 31 except for the first reconciliation period after the approval of Docket RIPUC 4323 which will be based on a stub period. The formula will be as follows:

$$LIAP = \frac{LIAP_B - LIAP_{EMB}}{Dt_T}$$

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Where:

LIAP	LIAP Factor
$LIAP_B$	Approved low income program funding(s)
Dt_T	Forecasted annual firm throughput
$LIAP_{EMB}$	LIAP funding embedded in base rates, $1,785,000; Consisting of $1,585,000 of Low Income Heating Assistance and $200,000 of Low Income Weatherization

3.4 Infrastructure, Safety and Reliability Plan:

3.4.1 Gas Infrastructure, Safety, and Reliability Plan Filing:

In compliance with R.I.G.L. Section 39-1-27.7.1, no later than January 1 of each year, the Company shall submit to the PUC a Gas Infrastructure, Safety, and Reliability Plan (Gas ISR Plan) for the upcoming fiscal year (April to March) for review and approval within 90 days. The Gas ISR Plan shall include the upcoming fiscal year's forecasted capital investment on its gas distribution system infrastructure and may include any other costs relating to maintaining safety and reliability that have been mutually agreed upon by the Division and the Company.

3.4.2 Infrastructure, Safety and Reliability Factor:

Effective each April 1, the Company shall recover through a change in Distribution Adjustment Charge rates the Cumulative Revenue Requirement on the Adjusted Cumulative Non-growth Capital spending as approved by the Commission in the Company's annual gas infrastructure, safety, and reliability filings less the amount included in rate base for base rate purposes. For purposes of this section, non-growth capital shall exclude general plant (FERC Accts 389 through 399). The Cumulative Revenue Requirement shall mean the return and taxes on year-end Adjusted Cumulative Non-growth Capital Spending, at a rate equal to the pre-tax weighted average cost of capital as approved by the Commission in the most recent distribution base rate proceeding, plus the annual depreciation net of depreciation expense attributable to general plant that was approved by the Commission in the Company's most recent distribution base rate proceeding adjusted, if appropriate, by later proceedings related to capital, plus the annual municipal property tax recovery mechanism as approved in the Settlement Agreement in Docket RIPUC 4323. The Adjusted Cumulative Non-growth Capital Spending shall mean the non-growth capital investment recorded since January 31, 2014 and reflecting any difference

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between Actual Non-Growth Investment and Forecasted Non-Growth Investment, included in rate base for base rate purposes, for the period April 1, 2011 through January 31, 2014, the end of the Company's rate year in its general rate case in docket RIPUC 4323. Cumulative Revenue Requirements will reflect Adjusted Cumulative Non-Growth Capital Spending as defined above plus the associated retirements, cost of removal, accumulated depreciation, and accumulated deferred taxes.

All accumulated Gas ISR investments will be eligible for inclusion in rate base recovery through new rates set in the next base rate case.

The Company shall allocate the Cumulative Revenue Requirements to its rate classes based on the rate base allocation approved by the PUC in the Company's most recent base distribution rate proceeding. Any other costs, including Operation and Maintenance expenses mutually agreed upon by the Division and the Company shall be allocated on a per unit basis.

3.4.3 Infrastructure, Safety and Reliability Factor: Reconciliation Mechanism:

The Company shall include an annual reconciliation mechanism associated with the ISR Factor designed to reconcile the actual Cumulative Revenue Requirements and any associated costs approved for recovery through this mechanism to the actual billed revenue for the prior fiscal year. As part of its annual DAC filing, the Company shall submit by August 1 a reconciliation factor (either positive or negative) related to the ISR Factor recoveries and actual Cumulative Revenue Requirements and any associated costs approved for recovery through this mechanism to take effect annually for the twelve months beginning November 1 each year.

3.5 Environmental Response Cost Factor (ERCF):

$$ERCF = \frac{\frac{\sum ERCyr_x}{10} - ERC_{EMB}}{Dt_T}$$

Where:

ERC Environmental Response Costs as defined in Section 1, Schedule B Definitions

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$\sum ERCy_{Rx}$ The sum of Environmental Response Costs, incurred in the most recent twelve month period ended March 31 except for the first reconciliation period after the approval of Docket RIPUC 4323 which will be based on a stub period and in the prior nine years.

ERC_{EMB} Environmental Response Costs funding embedded in base rates, $1,310,000.

Dt_T Forecasted annual firm throughput

In order to limit the bill impacts that could potentially result from the incurrence of environmental remediation costs, the ERC factor, calculated as described above, shall be limited to an increase of no more than $0.10 per dekatherm in any annual DAC filing. If this limitation results in the Company recovering less than the amount that would otherwise be eligible for recovery in a particular year, then beginning on the date that the proposed ERC factor becomes effective, carrying costs shall accrue to the Company on the portion of the environmental remediation costs not included in the ERC factor as a result of this limitation. Such carrying costs shall accrue through the year in which such amount, together with accumulated carrying costs, are recovered from ratepayers. Any amounts so deferred shall be incorporated into the ERC factor in succeeding years consistent with the $0.10 per dekatherm ERC factor annual increase limitation. Such carrying charges shall accrue at the Interest on Deferred Balance rate specified in Section 1, Schedule B of the Company's Definition section above.

3.6 Pension Adjustment Factor:

The Pension Adjustment Factor shall recover or refund the prior fiscal year's reconciliation of the Company's actual Pension and Post-retirement Benefits Other Than Pension (PBOP) expenses to the Company's Pension and PBOP expense allowance included in distribution base rates, including interest at the rate of interest paid on customer deposits. The PAF will be computed on an annual basis for the nine month period ending March 31, 2013 and thereafter for each twelve months ended March 31 and will be based on the difference in the Company's actual Pension and PBOP expense for the prior twelve month period ended March 31 and the distribution base rate allowance, plus carrying charges at the weighted average cost of capital on the cumulative five quarter average underfunding of the Pension and PBOP Minimum Funding Obligation for the fiscal year ended March 31. The Minimum Funding Obligation will be equal to the amount of Pension and PBOP costs collected from customers during the fiscal year, plus the amounts of Pension and PBOP costs capitalized during the year. The amount collected from customers during the fiscal

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year would include (1) Pension and PBOP allowance included in base rates, and (2) amounts collected or refunded through the PAF.

3.7 On-System Margin Credits:

Each year, the Company will calculate the total non-firm customer margins, exclusive of Rhode Island Gross Earnings Tax for the twelve month period ending each March 31 beginning March 31, 2014. If that total exceeds a target revenue of $1,800,000, the On-System Margin Credit shall be positive. If the total non-firm margins, exclusive of Rhode Island Gross Earnings Tax, for the twelve-month period ending March 31 are less than the target revenue of $1,800,000, the On-System Margin Credit shall be negative. For the twelve month period ending March 31, 2013, the target will be prorated for the seven month period ending January 31, 2013 for the On-System Margin target in effect during that period ($2,816,000) and actual firm and non-firm dual fuel Customer margins, (exclusive of Rhode Island Gross Earnings Tax) during that period and for the two month period ending March 31, 2013 during which the $1.8 million target is in effect and actual non-firm customer margins, exclusive of Rhode Island Gross Earning Tax, during that period.

The On System Margin Credit is calculated as follows:

$$MC = \frac{NFCM - \$1,800,000}{Dt_T}$$

Where:

MC — On-System Margin Credit factor

NFCM — The non-firm customer margins exclusive of Rhode Island Gross Earnings Tax (GET) for the 12 months ending March 31.

Dt_T — Forecasted annual firm throughput

If in any year the Company is required to calculate the total Non-Firm Customer margins, exclusive of GET, for a period less than a twelve month period, then the Company will prorate the target threshold based upon the monthly 2011 non-firm revenue distribution and if the total exceeds that prorated target threshold the Non-Firm On-System Margin credit will be positive and if it is less than the prorated target the credit will be negative. In addition, if a non-firm customer who was active customer during calendar year 2011 migrates to firm service, the Company will

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reduce the margin threshold by the non-firm customer's actual 2011 calendar year usage multiplied by the applicable non-firm rate approved in RIPUC Docket 4323. Conversely, the Company will increase the margin threshold for firm customers who migrate to non-firm service based upon the customers most recent historical usage multiplied by the applicable non-firm service rate.

3.8 Service Quality Performance Factor:

The Service Quality Performance (SQP) Factor will be used for crediting to customers any penalties reflected in the Company's annual Service Quality Report.

3.9 Revenue Decoupling Adjustment Factor:

The Revenue Decoupling Adjustment (RDA) Factor shall be a credit or surcharge determined for all Residential rate classes and Small and Medium C&I rate classes as the sum of the March 31 Revenue Per Customer deferral ending balances for each rate class divided by the forecasted total annual firm throughput for those rate classes. The March deferral ending balance for each rate class shall result from the monthly calculation of the variance between a Target Revenue-per-Customer and the Actual Revenue Per Customer for the following periods: (1) the ten month period ending January 31, 2013, (2) the fourteen month period February 1, 2013 – March 31, 2014 and (3) each twelve month period ending March 31 thereafter. The deferral balance will be calculated as follows:

$$RDAF = \frac{\sum_{RC}(AEB_{M-1} + VR_M + INT_M)}{Dt_{RC}}$$

Where:

RDAF Revenue Decoupling Adjustment Factor

$\sum_{RC}$ The sum of the March 31 Revenue per Customer deferral ending balances for each of the following rate classes: Residential Non-heat (including Low Income Residential Non-heat), Residential Heat (including Low Income Residential Heat), Small C&I, and Medium C&I.

AEB_{M-1} Account Ending Balance for prior month

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VR_M Current month Variance

$= (RPC_{TM} - RPC_{AM}) \times CUST_M$

RPC_{TM} For the period ending January 31, 2013, the Target Revenue per Customer will be based on targets established in Docket RIPUC 4206. Thereafter, Target Revenue per Customer will be based on class specific revenue per customer targets established in the most recent rate case. Target Revenue for Low-Income classes will reflect non-discounted revenue. Low-income class revenue and customers will be included with non-discounted revenue and customers for the purposes of setting the target.

RPC_{AM} Actual Revenue per Customer for current month calculated as actual base revenues divided by number of customers in the current month. Revenue for Low-Income classes will reflect non-discounted revenues.

$CUST_M$ Number of customers in current month.

INT_M Interest on average monthly balance

$$= \frac{(AEB_{M-1} + VR_M) \times BA_M}{2}$$

BA_M Bank of America Prime minus 200 basis points

Dt_{RC} Forecasted annual firm throughput for the following rate classes: Residential Non-heat (including Low Income Residential Non-heat), Residential Heat (including Low Income Residential Heat), Small C&I, and Medium C&I.

3.10 Arrearage Management Adjustment Factor (AMAF):

In compliance with R.I.G.L. §39-2-1(d)(2), the Company shall surcharge customers allowable amounts forgiven through the Arrearage Management Plan (AMP) over the prior calendar year as described in Section 7, Schedule C, Item 9.0 through the AMAF factor.

DISTRIBUTION ADJUSTMENT CLAUSE

$$AMAF = \frac{AMPC}{Dt_T}$$

Where:

AMPC — Allowable arrearage management plan costs the Company may recover from firm sales customers in accordance with R.I.G.L. § 39-2-1(d)(2) and described in Section 7, Schedule C, Item 9.0.

Dt_T — Forecasted annual firm throughput

4.0 DEFERRED DISTRIBUTION ADJUSTMENT COST ACCOUNT:

The Distribution Adjustment Cost Account shall include annual reconciliation for the twelve month period for the revenues and costs for the System Pressure factor, Advanced Gas Technology factor, LIAP factor, ISR factor, Environmental Response Costs factor, Pension Adjustment Factor, On-System Margin Credit factor, SQP factor, RDA factor, ESM factor, Arrearage Management Adjustment Factor, and a Previous Reconciliation factor, including a true-up for any prior year's forecasted revenues and costs. Base rate related items (LIAP factor, Advanced Gas Technology factor, and Environmental Response cost factor) will be only be reconciled for those non-Revenue Decoupling rate classes (Large and Extra Large high load and low load factor rate classes). For each reconciliation component, a monthly rate based on a monthly rate of the current Bank of America prime interest rate less 200 basis points (2%), multiplied by the arithmetic average of the account's beginning and ending balance shall also apply.

5.0 EARNINGS SHARING MECHANISM:

The annual Earnings Sharing Mechanism ("ESM") established in Docket No. 3401 will remain in place. The Earnings Sharing Mechanism Credit ("ESMC") will be included with the September 1 DAC filing based on financial information for the 9-month period ending March 31, 2013 and for each 12 months period ending March 31 thereafter. For purposes of calculating earnings to be shared, the Company will be allowed to include its 50% share of net merger synergies resulting from the National Grid/KeySpan transactions, or $2,450,000. Calculation of the ESMC is as follows:

$$ESMC = \frac{ESMF}{Dt_T}$$

DISTRIBUTION ADJUSTMENT CLAUSE

Where:

ESMF	Earnings Sharing Mechanism Fund is defined as the earnings subject to sharing and will be based on a return on equity of 10.5% for the seven month period ending January 31, 2013 and 9.5% for 2 month period ending March 31, 2013. Thereafter earnings subject to sharing will be based on a return on equity of 9.50%. Annual earnings over this return on equity, up to and including 100 basis points, being shared 50% to customers and 50% to the Company. Any earnings more than 100 basis points in excess of this return on equity shall be shared 75% to customers and 25% to the Company.
Dt_T	Forecasted annual firm throughput

RESIDENTIAL NON-HEATING
RATE 10

1.0 AVAILABILITY:

Sales service is available under this rate for all domestic non-heating purposes in individual private residential dwellings with six (6) or less units or in connection with condominium associations with gas supplied through one meter.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 RATES: Customer Charge: $ 13.00 per month

Distribution Charge: $0.4386 per Therm

4.0 MINIMUM CHARGE:

Customer Charge per month.

5.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

6.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

7.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

8.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

RESIDENTIAL NON-HEATING
RATE 10

9.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

10.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

LOW INCOME RESIDENTIAL NON-HEATING RATE 11

1.0 AVAILABILITY:

Sales service is available under this rate for all domestic non-heating purposes in individual private residential dwellings with six (6) or less units or in connection with condominium associations with gas supplied through one meter. A Customer will be eligible for this rate upon verification of the Customer's participation in the low income home energy assistance program or its successor program.

Compliance with the foregoing qualifications will be verified annually with the State Office of Energy Resources.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 RATES: Customer Charge: $11.70 per month

Distribution Charge: $0.3947 per Therm

4.0 MINIMUM CHARGE:

Customer Charge per month.

5.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

6.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

7.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

LOW INCOME RESIDENTIAL NON-HEATING
RATE 11

8.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

9.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

10.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

RESIDENTIAL HEATING
RATE 12

1.0 AVAILABILITY:

Sales service is available under this rate for all domestic purposes in individual private residential dwellings with six (6) or less units or in connection with condominium associations with gas supplied through one meter where natural gas is the primary fuel used for space and/or central heating equipment.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 RATES:

Customer Charge:	$13.00 per month
Distribution Charge:	
On-Peak Period (November – April)	
First 125 Therms	$0.4672 per Therm
Over 125 Therms	$0.3010 per Therm
Off-Peak Period (May – October)	
First 30 Therms	$0.4672 per Therm
Over 30 Therms	$0.3010 per Therm

4.0 MINIMUM CHARGE:

Customer Charge per month.

5.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

6.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

7.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2,

RESIDENTIAL HEATING
RATE 12

Schedule A.

8.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

9.0 ENERGY EFFICIENCY:

This application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

10.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

LOW INCOME RESIDENTIAL HEATING
RATE 13

1.0 AVAILABILITY:

Sales service is available under this rate for all domestic purposes in individual private residential dwellings with six (6) or less units or in connection with condominium associations with gas supplied through one meter where natural gas is the primary fuel used for space and/or central heating equipment. A Customer will be eligible for this rate upon verification of the Customer's participation in the low income home energy assistance program or its successor program.

Compliance with the foregoing qualifications will be verified annually with the State Office of Energy Resources.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 RATES:

Customer Charge:	$11.70 per month
Distribution Charge:	
On-Peak Period (November – April)	
First 125 Therms	$0.4205 per Therm
Over 125 Therms	$0.2709 per Therm
Off-Peak Period (May – October)	
First 30 Therms	$0.4205 per Therm
Over 30 Therms	$0.2709 per Therm

4.0 MINIMUM CHARGE:

Customer Charge per month.

5.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

6.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

LOW INCOME RESIDENTIAL HEATING
RATE 13

7.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

8.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

9.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

10.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

C&I SMALL
RATE 21

1.0 AVAILABILITY:

Transportation or Sales service is available under this rate at single locations to Commercial and Industrial customers whose annual gas usage is equal to or less than 5,000 Therms as determined by Company records and procedures. In the case of a New Customer, or an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the Customer.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 TRANSPORTATION SERVICE PROVISIONS:

For Customers selecting transportation service under this Schedule, the Transportation Service provisions found in Section 6 are applicable as in effect from time-to-time. Customers receiving service under this Schedule are only eligible for FT-2 transportation service.

4.0 RATES:

Customer Charge:	$22.00 per month
Distribution Charge:	
On-Peak Period (November - April)	
First 135 Therms	$0.5431 per Therm
Over 135 Therms	$0.2242 per Therm
Off-Peak Period (May - October)	
First 20 Therms	$0.5431 per Therm
Over 20 Therms	$0.2242 per Therm

5.0 MINIMUM CHARGE:

Customer Charge per month.

6.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

C&I SMALL
RATE 21

7.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

8.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

9.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

10.0 ENERGY EFFICIENCY:

This application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

C&I MEDIUM
RATE 22

1.0 AVAILABILITY:

Transportation or Sales service is available under this rate at single locations to Commercial and Industrial customers whose annual gas usage is greater than 5,000 Therms, but less than or equal to 35,000 Therms as determined by Company records and procedures. In the case of a New Customer, or an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the customer.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 TRANSPORTATION SERVICE PROVISIONS:

For Customers selecting transportation service under this Schedule, the Transportation Service provisions found in Section 6 are applicable as in effect from time-to-time. Customers receiving service under this Schedule are only eligible for FT-2 transportation service.

4.0 RATES:

Customer Charge:	$70.00 per month
Demand Charge:	$1.3000 per Therm of customer's maximum average daily quantity (MADQ) from the most recent November through April period based on historical billing data. In the case of a new customer or a customer with new gas applications, the November through April gas consumption shall be that agreed upon by the Company and the customer.
Distribution Charge:	$0.1865 per Therm

5.0 MINIMUM CHARGE:

Customer Charge and Demand Charge per month.

6.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

C&I MEDIUM
RATE 22

7.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

8.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

9.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

10.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

C&I LARGE HIGH LOAD FACTOR USE
RATE 23

1.0 AVAILABILITY:

Transportation or Sales service is available under this rate at single locations to Commercial and Industrial customers whose annual gas usage is greater than 35,000 Therms, but less than 150,000 Therms and whose off-peak (May through October) gas usage is equal to or greater than 31% of the annual gas usage for the most recent September through August period, as determined by Company records and procedures. In the case of a New Customer, or an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the Customer.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 TRANSPORTATION SERVICE PROVISIONS:

For Customers selecting transportation service under this Schedule, the Transportation Service provisions found in Section 6 are applicable as in effect from time-to-time. Customers receiving service under this Schedule may receive either FT-1 or FT-2 transportation service.

4.0 RATES:

Customer Charge:	$175.00 per month
Demand Charge:	$1.8000 per Therm of customer's maximum average daily quantity (MADQ) from the most recent November through April period based on historical billing data. In the case of a new customer or a customer with new gas applications, the November through April gas consumption shall be that agreed upon by the Company and the customer.
Distribution Charge:	$0.1007 per Therm

5.0 MINIMUM CHARGE:

Customer Charge and Demand Charge per month.

6.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from

C&I LARGE HIGH LOAD FACTOR USE
RATE 23

time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

7.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

8.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

9.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

10.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

C&I EXTRA LARGE HIGH LOAD FACTOR USE
RATE 24

1.0 AVAILABILITY:

Transportation or Sales service is available under this rate at single locations to Commercial and Industrial customers whose annual gas usage is equal to or greater than 150,000 Therms and whose off-peak (May through October) gas usage is equal to or greater than 31% of the annual gas usage for the most recent September through August period, as determined by Company records and procedures. In the case of a New Customer, or an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the Customer.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 TRANSPORTATION SERVICE PROVISIONS:

For Customers selecting transportation service under this Schedule, the Transportation Service provisions found in Section 6 are applicable as in effect from time-to-time. Customers receiving service under this Schedule may receive either FT-1 or FT-2 transportation service.

4.0 RATES:

Customer Charge:	$425.00 per month
Demand Charge:	$1.8000 per Therm of customer's maximum average daily quantity (MADQ) from the most recent November through April period based on historical billing data. In the case of a new customer or a customer with new gas applications, the November through April gas consumption shall be that agreed upon by the Company and the customer.
Distribution Charge:	$0.0256 per Therm

5.0 MINIMUM CHARGE:

Customer Charge plus Demand Charge per month.

6.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from

C&I EXTRA LARGE HIGH LOAD FACTOR USE
RATE 24

time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

7.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

8.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

9.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

10.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

C&I LARGE LOW LOAD FACTOR USE
RATE 33

1.0 AVAILABILITY:

Transportation or Sales service is available under this rate at single locations to Commercial and Industrial customers whose annual gas usage is greater than 35,000 Therms, but less than 150,000 Therms and whose off-peak (May through October) gas usage is equal to or less than 30% of the annual gas usage for the most recent September through August period, as determined by Company records and procedures. In the case of a New Customer, or an existing Customer with new gas applications, the off-peak and annual gas usage for the first year shall be that agreed upon by the Company and the Customer.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 TRANSPORTATION SERVICE PROVISIONS:

For Customers selecting transportation service under this Schedule, the Transportation Service provisions found in Section 6 are applicable as in effect from time-to-time. Customers receiving service under this Schedule may receive either FT-1 or FT-2 transportation service.

4.0 RATES:

Customer Charge:	$175.00 per month
Demand Charge:	$1.3000 per Therms of customer's highest average daily consumption from the most recent November through April period based on historical billing data. In the case of a new customer or a customer with new gas applications, the November through April gas consumption shall be that agreed upon by the Company and the customer.
Distribution Charge:	$0.1727 per Therm

5.0 MINIMUM CHARGE:

Customer Charge and Demand Charge per month.

6.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from

C&I LARGE LOW LOAD FACTOR USE
RATE 33

time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

7.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

8.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

9.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

10.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

C&I EXTRA LARGE LOW LOAD FACTOR USE
RATE 34

1.0 AVAILABILITY:

Transportation or Sales service is available under this rate at single locations to Commercial and Industrial customers whose annual gas usage is equal to or greater than 150,000 Therms and whose off-peak (May through October) gas usage is equal to or less than 30% of the annual gas usage for the most recent September through August period, as determined by Company records and procedures. In the case of a New Customer, or an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the Customer.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 TRANSPORTATION SERVICE PROVISIONS:

For Customers selecting transportation service, the Transportation Service provisions found in Section 6 are applicable as in effect from time-to-time. Customers receiving service under this Schedule may receive either FT-1 or FT-2 transportation service.

4.0 RATES:

Customer Charge:	$425.00 per month
Demand Charge:	$1.3000 per Therm of customer's maximum average daily quantity (MADQ) from the most recent November through April period based on historical billing data. In the case of a new customer or a customer with new gas applications, the November through April gas consumption shall be that agreed upon by the Company and the customer.
Distribution Charge:	$0.0328 per Therm

5.0 MINIMUM CHARGE:

Customer Charge plus Demand Charge per month.

6.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this

C&I EXTRA LARGE LOW LOAD FACTOR USE
RATE 34

Schedule.

7.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

8.0 GAS COST RECOVERY CLAUSE:

The application of the above rate is subject to the Gas Cost Recovery Clause in Section 2, Schedule A.

9.0 DISTRIBUTION ADJUSTMENT CLAUSE:

The application of the above rate is subject to the Distribution Adjustment Clause in Section 3, Schedule A.

10.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

NON-FIRM SALES (NFS) SERVICE
RATE 60

1.0 AVAILABILITY:

Non-firm sales service is grandfathered as of July 1, 2009 and will no longer be offered to any customer, except that any non-firm sales customer as of that date will be able to continue the service until such time that the non-firm sales customer decides to change to firm service or obtain non-firm transportation service and purchase natural gas from a third-party Marketer. Such customers are non-residential customers with dual-fuel capability: (1) whose premises are located adjacent to the Company's gas distribution mains having adequate capacity to supply the customer's prospective gas requirements in addition to the requirements of other customers already receiving service from such distribution mains; (2) who uses gas for boiler load, process load or cogeneration with a minimum combined hourly input of 100 Ccf/hour; and (3) who maintains adequate standby facilities for the use of an alternate fuel which may be substituted for gas when gas is not available under this Tariff.

2.0 RATES:

Non-firm Sales (NFS) service rates shall be set for the upcoming month, no later than 10:30 a.m. ten (10) business days prior to the commencement of that month. The Customer must notify the Company by 9:00 a.m. two (2) business days prior to the commencement of that month of the intention to take NFS service, and must provide a reasonable estimate of natural gas expected to be used for the month.

Customer charges will be determined as follows:

1. For those Customers who can potentially consume more than 150,000 Therms per month:

   - $625 per month, per customer

2. For those Customers who can potentially consume more than 35,000 Therms, but less than 150,000 Therms per month:

   - $405 per month, per customer

3. For those Customers whose potential monthly consumption is less than 35,000 Therms per month:

   - $185 per month, per customer

The Distribution Charge applicable to a non-firm sales service customer shall be based on the Customer's annual usage in accordance with the following:

NON-FIRM SALES (NFS) SERVICE
RATE 60

≤ 35,000 therms	$0.2206 per therm
35,001 to 150,000 therms and:	
Off-peak usage ≤ 31%	$0.2147 per therm
Off-peak usage > 31%	$0.1436 per therm
> 150,000 therms and:	
Off-peak usage ≤ 31%	$0.0912 per therm
Off-peak usage > 31%	$0.0733 per therm

The reference to 31% is to the percentage of gas usage from May through October compared to annual usage from September through August. In the case of an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the Customer. The classification will be based on the higher of the most recent 12-months usage or the 12-months previous to that. This classification will be reviewed annually after the August billing period and any change will be reflected with the September bill.

The Company will provide the customer with an initial mid-month estimate of the Commodity Charge based on 110% of the sum of the NYMEX closing price on the eleventh business day prior to the start of the month and a publicly available forward basis for gas supply delivered to the Northeastern US. The forward basis will be the Transco Zone 6 Basis Swap (based on the Platts IFERC basis swap obtained from the NYMEX), or a publicly traded forward basis for supply delivered to the Company's city gate (should one become available) or such other publicly available traded basis for supply delivered to the Northeastern U.S. should the Transco Zone 6 Basis Swap become unavailable. The Company will recalculate the Commodity Charge based upon the NYMEX settled price and a publicly available forward basis for gas supply delivered to the Northeastern US. The Customer shall be charged the higher of the recalculated rate or the initial mid-month estimate.

3.0 MINIMUM CHARGE:

For delivery service, the minimum charge is the Customer Charge per month. Under no circumstances shall the NFS Commodity Charge be less than the cost of the incremental supply available to the Company for the month, adjusted for the Company's Fuel Allowance.

4.0 NOTIFICATION OF INTERRUPTION/CURTAILMENT:

The Customer will curtail or discontinue service when, in the sole opinion of the Company,

NON-FIRM SALES (NFS) SERVICE
RATE 60

such curtailment or interruption is necessary in order for it to continue to supply the gas requirements of its firm customers at such time. The Company will attempt to give the Customer three (3) working days' notice of such curtailment, except in emergency situations, when at least one hour's notice shall be given.

5.0 FAILURE TO CURTAIL:

For any period that a Customer fails to curtail the use of gas as requested by the Company, the charge for gas commodity delivered to the Customer will be equal to the Gas Usage at a penalty of five (5) times the Daily Index. Such use of gas under these circumstances shall be considered an "unauthorized use" of gas.

In the event where the Company, in its sole discretion, grants the Customer an exemption from the curtailment, the use of gas under these circumstances shall be referred to as an "authorized use of gas." Authorized use of gas during a curtailment will be for a limited time period. The charge for gas commodity delivered to the Customer under these conditions will be the highest cost gas required to meet demand during the applicable curtailment period. Payments for this use, whether authorized or unauthorized, shall not preclude the Company from turning off the customer's supply of gas in the event of the failure to interrupt, or curtail, the use thereof when requested to do so.

All gas delivered to the Customer during a curtailment, either "unauthorized" or "authorized" shall be subject to the Distribution Charges and Energy Efficiency Program Charge in effect at the time of such Gas Usage.

6.0 METER TEST:

Users will receive the results of periodic calibration tests performed by the Company on the meters installed on their premises. Meters will be deemed unacceptable if these tests show an error greater than +/-1%. Meters will also be deemed unacceptable, no matter what their error, if the results of three successive tests are consistently high or low. Meters will measure gas flow rates corrected to 60° F gas.

7.0 TELEMETERING:

Telemetering equipment is required for those customers who wish to avail themselves of this service.

NON-FIRM SALES (NFS) SERVICE
RATE 60

8.0 NON-FIRM TRANSPORTATION SERVICE OPTION:

The Company will also offer, during the winter months, limited NFS and non-firm transportation (NFT) service for customers on a "best efforts" basis. If a Customer buying gas under this rate schedule opts to directly arrange for the acquisition of wellhead gas supplies, and the transportation of those wellhead gas supplies to the Company's gate stations, then the Company will transport, subject to available capacity, such directly acquired gas to the Customer's facilities. Rates and conditions for such transportation service are included in the Company's Non-Firm Transportation (NFT) Service in Section 6, Schedule A of RIPUC NG 101.

9.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

10.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section1, Schedule C.

11.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

TRANSITION SALES SERVICE
TSS

1.0 AVAILABILITY:

Transitional Sales Service (TSS) shall apply to Customers subject to the Transportation Terms and Conditions. The Company's General Terms and Conditions will govern this Service to the extent not consistent herewith.

TSS is not available to Capacity Exempt Customers.

The Company reserves the right to restrict the availability of this service if the Company determines that the integrity of the distribution system is at risk.

2.0 GENERAL CONDITIONS:

TSS is provided by the Company to Customers switching from supplier service to firm sales service. TSS is available to Customers who meet the requirements of Section 5, Schedule H, Item 1.0, and (a) who terminate supplier service, (b) who receive a termination notice from a designated supplier, or (c) for whom a designated supplier becomes ineligible to serve the Customer.

All Customers transferring to firm sales service from firm transportation service, either from FT-1 service or FT-2 service, and who have received an assignment of the Company's interstate pipeline capacity while on firm transportation service immediately prior to their transfer back to firm sales service, will be subject to the provisions of this rate schedule in addition to the provisions of the Company's applicable firm sales service rate schedules.

3.0 TERM:

For each Customer who transfers to firm sales service from FT-1 transportation service, TSS will be applicable to firm sales service provided to the Customer through the next April 30 after the Customer starts taking firm sales service or until the Customer enters into a contractual commitment with the Company to take firm sales service continuously for a period of not less than one year. After April 30, the Customer will receive firm sales service and will not be subject to the TSS surcharge defined below.

For each Customer transferring to firm sales service from FT-2 transportation service, TSS will be applicable to firm sales service provided to the Customer through the end of the Customer's first billing cycle subsequent to the next April 30 after the Customer starts taking firm sales service or until the Customer enters into a contractual commitment with the Company to take firm sales service continuously for a period of not less than one year. After the end of the first billing cycle after April 30, the Customer will receive firm sales service

TRANSITION SALES SERVICE
TSS

and will not be subject to the TSS surcharge defined below.

4.0 SURCHARGE:

Each Customer receiving TSS will be subject to a monthly surcharge during the term the Customer receives TSS, unless a Customer, prior to their return to the Company for gas supply, enters into a contractual commitment with the Company to take firm sales service continuously for a period of not less than one year. If such an agreement is executed, the Customer will not be subject to the TSS surcharge. The TSS surcharge is designed to charge a market-based price reflecting the cost of gas supplies in the marketplace at the time consumption is occurring for the incremental amount of gas that the Company must purchase over and above the quantities of gas procured for firm sales customers under the provisions of the Company's Gas Procurement Incentive Plan ("GPIP"). The surcharge will reflect any positive difference between the GPIP cost of gas for the month in which gas is supplied and a market-based gas price for the same month. This surcharge shall apply to all firm sales service consumption of Customers switching from firm transportation service subsequent to April 30 of each year, with the exception of those Customers committing to remain on firm sales service for a period of at least 12 months as described above.

4.1 Calculation:

The surcharge for Customers who switch to firm sales service from firm transportation service shall be computed as follows:

IF
$\{ [(NYMEX_M - GPIP_M) (GPIP_{QM}/Dt_M)] \} - R_{GCR}$ is > 0,

THEN:
$TSS = \{ [(NYMEX_M - GPIP_M) (GPIP_{QM}/Dt_M)] \} - R_{GCR}$

OTHERWISE:
TSS = 0

Where:

TSS Transitional Sales Service monthly surcharge.

$NYMEX_M$ The NYMEX closing price for month M.

$GPIP_M$ Average cost of gas purchased under the GPIP for month M.

TRANSITION SALES SERVICE
TSS

$GPIP_{QM}$ The Total Quantity of GPIP purchases for month M.

Dt_M Total forecasted sales for month M underlying the GPIP.

R_{GCR} The per Dt Deferred Gas Cost Reconciliation reflected in the current GCR charge.

TSS surcharges will be calculated monthly. Supporting calculations for all components of the applicable surcharges will be posted on the Company's website by the second business day of each month. In addition, supporting workpapers shall be submitted to the PUC and the Division simultaneously with the posting on the Company's website.

5.0 STORAGE AND PEAKING:

FT-1 firm transportation service Customers eligible for TSS who transfer to firm sales service will be subject to a Storage and Peaking charge for recovery of Storage and Peaking costs. Such charge will be calculated at the time the FT-1 customer transfers to firm sales service based on the customer's actual consumption as a FT-1 transportation customer since the most recent April 1, multiplied by the currently effective FT-2 Demand Charge provided in the Company's most recently approved GCR filing.

NON-FIRM TRANSPORTATION (NFT) SERVICE
RATE 61

1.0 AVAILABILITY:

For any non-residential customer with dual-fuel capability: (1) whose premises are located adjacent to the Company's gas distribution mains having adequate capacity to supply the Customer's prospective gas requirements in addition to the requirements of other customers already receiving service from such distribution mains; (2) who uses gas for boiler load, process load, or cogeneration with a minimum combined hourly input of 100 Ccf/hour; and (3) who maintains adequate standby facilities for the use of an alternate fuel which may be substituted for gas when gas transportation is not available under this Tariff.

This rate is available to any Customer who has, without the assistance of the Company or the use of its facilities or dedicated pipeline capacity, arranged for the acquisition and transportation of gas supplies to the Company's gate stations, has executed a Transportation Service Application, has designated on such Application a Marketer as required under the Transportation Terms and Conditions in Section 6, Schedule C and who meets the following additional criteria:

A. The Customer must have telemetering equipment in place.

B. The Customer agrees to discontinue service, when in the sole discretion of the Company, such discontinuance is necessary in order to continue to serve the needs of firm customers at such time. The Company will attempt to give three (3) working days' notice of such action except in the event of emergency, when at least one hour's notice will be given.

Any gas consumed during a requested discontinuance, whether authorized or unauthorized, shall be provided by the Company and not a third party supplier or Marketer of record.

2.0 RATE:

The Customer must notify the Company by 9:00 a.m. two (2) business days prior to the commencement of that month of any change in gas marketer.

Customer Charge will be determined as follows:

1. For those Customers who can potentially consume more than 150,000 Therms per month:

- $715 per month, per customer.

NON-FIRM TRANSPORTATION (NFT) SERVICE
RATE 61

2. For those Customers who can potentially consume more than 35,000 Therms, but less than 150,000 Therms per month:

   - $485 per month, per customer

3. For those Customers whose potential monthly consumption is less than 35,000 Therms per month:

   - $275 per month, per customer

Distribution Charge:

The Distribution Charge applicable to a non-firm transportation service Customer shall be based on the Customer's annual usage in accordance with the following:

≤ 35,000 therms	$0.2206 per therm
35,001 to 150,000 therms and:	
Off-peak usage ≤ 31%	$0.2147 per therm
Off-peak usage > 31%	$0.1436 per therm
> 150,000 therms and:	
Off-peak usage ≤ 31%	$0.0912 per therm
Off-peak usage > 31%	$0.0733 per therm

The reference to 31% is to the percentage of gas usage from May through October compared to annual usage from September through August. In the case of a New Customer, or an existing Customer with new gas applications, the annual gas usage for the first year shall be that agreed upon by the Company and the Customer. The classification will be based on the higher of the most recent 12-months usage or the 12-months previous to that. This classification will be reviewed annually after the August billing period and any change will be reflected with the September bill.

3.0 MINIMUM CHARGE:

For delivery service, the minimum charge is the Customer Charge per month.

NON-FIRM TRANSPORTATION (NFT) SERVICE
RATE 61

4.0 TRANSPORTATION TERMS AND CONDITIONS:

The Company's Transportation Terms and Conditions, Section 6, Schedule C, as in effect from time-to-time and where not inconsistent with any provisions hereof, are a part of this Schedule.

5.0 GENERAL RULES AND REGULATIONS:

The Company's General Terms and Conditions, Section 1, Schedule A, as in effect from time-to-time and where not inconsistent with any provisions hereof, are a part of this Schedule.

6.0 TELEMETERING EQUIPMENT:

Telemetering equipment is required. The customer may have access to the telemetering equipment for data gathering and transmission.

7.0 NON-FIRM CUSTOMER USE OF GAS:

A Non-Firm customer that elects to use gas from the Company for any reason shall receive Default Transportation Service and be charged the rate applicable to such service as set forth in the Transportation Terms and Conditions, Section 6, Schedule C, Item 2.04.0 for the first month of service and shall pay the Non-Firm unauthorized use rate as forth in the Transportation Terms and Conditions, Section 6, Schedule C, Item 1.05.0 for all additional months.

8.0 NOTIFICATION OF INTERRUPTION/CURTAILMENT:

The Customer will curtail or discontinue service when, in the sole opinion of the Company, such curtailment or interruption is necessary in order for it to continue to supply the gas requirements of its firm customers at such time. The Company will attempt to give the Customer three (3) working days' notice of such curtailment, except in emergency situations, when at least one hour's notice shall be given.

9.0 FAILURE TO CURTAIL:

For any period that a Customer fails to curtail the use of gas as requested by the Company, the charge for gas commodity delivered to the Customer will be equal to the Gas Usage at a penalty of five (5) times the Daily Index. Such use of gas under these circumstances shall be considered an "unauthorized use" of gas.

NON-FIRM TRANSPORTATION (NFT) SERVICE
RATE 61

In the event where the Company, in its sole discretion, grants the Customer an exemption from the curtailment, the use of gas under these circumstances shall be referred to as an "authorized use of gas." Authorized use of gas during a curtailment will be for a limited time period. The charge for gas commodity delivered to the Customer under these conditions will be the highest cost gas required to meet demand during the applicable curtailment period. Payments for this use, whether authorized or unauthorized, shall not preclude the Company from turning off the customer's supply of gas in the event of the failure to interrupt, or curtail, the use thereof when requested to do so.

All gas delivered to the Customer during a curtailment, either "unauthorized" or "authorized" shall be subject to the Distribution Charges and Energy Efficiency Program Charge in effect at the time of such Gas Usage.

10.0 GAS BALANCING NOMINATION/AGGREGATION:

Refer to the Transportation Terms and Conditions, Section 6, Schedule C.

11.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

12.0 ENERGY EFFICIENCY:

The application of the above rate is subject to Energy Efficiency provisions in Section 1, Schedule C.

13.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

FIRM TRANSPORTATION SERVICE

1.0 AVAILABILITY:

Firm Transportation Service is available to any Commercial and Industrial customer account who:

(1) is classified as Small, Medium, Large, or Extra Large pursuant to Section 5, Schedule A, B, C, D, E, and F: and,

(2) elects to purchase gas supplies from a supplier other than the Company through the execution of a Transportation Service Application pursuant to the Transportation Terms and Conditions, Section 6, Schedule C.

2.0 CHARACTER OF SERVICE:

Firm Transportation Service provides for the transportation of gas supplies purchased on a customer's behalf from a supplier other than the Company on a firm 365 days per year basis. Service is classified as either Firm Transportation Service FT-1 or Firm Transportation Service FT-2 as follows:

FT-1 This service provides firm transportation of customer-purchased gas supplies to customers electing to have Gas Usage recorded on a daily basis at the customer's Point of Delivery. This service is available only to Large and Extra Large Commercial and Industrial customers.

FT-2 This service provides firm transportation of customer-purchased gas supplies to customers without the requirement for recording daily Gas Usage at the customer's Point of Delivery. This service is available to all Commercial and Industrial customers.

Also refer to the Transportation Terms and Conditions, Section 6, Schedule C, Items 2.0 and 3.0 for additional information.

3.0 RATES:

Specific rates billable by the Company to the customer are those applicable under the customer's service classification as provided for in Section 5, Schedules A, B, C, D, E, or F. For customers electing FT-1 Service, a one-time charge associated with the installation of telemetering equipment may also apply as provided for under the Transportation Terms and Conditions, Section 6, Schedule C, Item 2.02.0.

Rates associated with Firm Transportation Service which is billable to Marketers are those

FIRM TRANSPORTATION SERVICE

applicable under the Transportation Terms and Conditions, Section 6, Schedule C as in effect from time-to-time.

4.0 TRANSPORTATION TERMS AND CONDITIONS:

The Transportation Terms and Conditions in Section 6, Schedule C, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of the Schedule.

5.0 GENERAL RULES AND REGULATIONS:

Firm Transportation Service will also be governed by the Company's General Terms and Conditions of Service to the extent not inconsistent herewith.

TRANSPORTATION TERMS AND CONDITIONS

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TRANSPORTATION TERMS AND CONDITIONS

1.0 GENERAL:

These terms and conditions apply to those Commercial and Industrial customers classified as Small, Medium, Large, Extra Large, or Non-firm who purchase gas supplies from sources other than the Company for transportation service by the Company pursuant to Section 5, Schedule A, B, C, D, E, and F, and Section 6, Schedule A, as well as to any Marketers designated to act on the customer's behalf pursuant to a Transportation Service Application and executing a Marketer Aggregation Pool Service Agreement. Any FT-1 customers classified as Medium at the time the access to FT-1 service for Medium customers was discontinued or any Customers reclassified as Medium based on their reduction in load will be grandfathered and allowed to continue receiving service under the FT-1 rate schedule. Transportation service will also be governed by the Company's General Terms and Conditions of Service to the extent not inconsistent herewith.

The Company reserves the right to restrict the availability of Transportation Service should the number of customers exceed the capability of the Company to reliably administer the service or if the integrity of the distribution system is put at risk.

If a Customer requesting service hereunder has been a sales service customer of the Company at the same service location within the preceding twelve month period, any under-recovered or over-recovered gas costs attributable to such prior service under the Gas Cost Recovery Clause in Section 2, Schedule A, Section 9.0 shall be determined and charged by the Customer or credited to the Customer's account.

1.01.0 TERM OF SERVICE:

1.01.1 FT-1 Transportation Service:

FT-1 Transportation Service will commence on the first day of a calendar month subject to satisfying the Company's Transportation Terms and Conditions and be for an initial term of up to one year to reflect a common anniversary of November 1. Service shall continue thereafter on a year-to-year basis, unless terminated by the Customer, Marketer or the Company, effective with the Customer's next billing cycle, upon at least thirty (30) days advance notice, either by written notice or the appropriate EDI transmission, to the Company. The Marketer shall be responsible for providing the Company with an executed Transportation Service Application for each new FT-1 customer account being added to its FT-1 Aggregation Pool no less than thirty (30) days prior to commencement of service. The Company's receipt of the Transportation Service Application initiates the thirty (30) day notice period. Existing FT-1 service customers may be switched to another Marketer by using an EDI enrollment transaction.

TRANSPORTATION TERMS AND CONDITIONS

1.01.2 FT-2 Transportation Service:

FT-2 Transportation Service will commence on the first day of a Customer's billing cycle subject to satisfying the Company's Transportation Terms and Conditions. Service shall continue thereafter on a year-to-year basis unless terminated by the Customer, Marketer, or the Company, effective with the Customer's next billing cycle, upon at least fifteen (15) days advance written notice to the Company. The Marketer shall be responsible for providing the Company with an EDI enrollment for each Customer being added to its FT-2 Aggregation Pool no less than fifteen (15) days prior to commencement of service.

1.01.3 Non-Firm Transportation (NFT) Service:

Customers classified as Non-Firm Transportation (NFT) will be able to commence transportation as of the first (1st) of any calendar month subject to meeting the nomination requirements established in Item 1.03 following and having submitted to the Company an executed Transportation Service Application.

A Customer's designation as NFS or NFT shall remain in effect until the Company is notified of a further change. Such notice is required by 9 a.m. two (2) business days before the start of the calendar month when such change is to take effect. Switching to or initiating transportation service mid-month is generally not allowed.

1.02.0 Designation Of Marketer:

1.02.1 Firm Transportation:

Customers wishing to switch Marketers will be allowed to do so at the start of a calendar month in the case of FT-1 Service, or at the start of a Customer's billing cycle in the case of FT-2 Service. For new FT-1 Service, the Customer and the new Marketer shall execute a new Transportation Service Application listing the new Marketer as their designated Marketer and forward that document to the Company for processing. For FT-2 Service, the Marketer will contact the Company through electronic data interchange (EDI) to initiate service with the customer account number being the validation. In the event of a dispute over the enrollment of a customer, the Marketer will be required to provide proof of authorization by the customer. This can be in the form of a signed agreement with the customer, audio recording of the customer's agreement/or authorization or an electronically recorded authorization. The Marketer is required to retain such proof for a minimum of two years or for the length of the service agreement, whichever is longer. The Company must receive the new Transportation Service Application or EDI transmittal at least thirty (30) days prior to the change in the case of FT-1 Service, and at least fifteen (15) days prior to the customer's meter read in the case of FT-2 Service. For an FT-

TRANSPORTATION TERMS AND CONDITIONS

1 Service customer without a capacity assignment from the Company, see Item 1.07 below, the Company must be notified of such change by 9 a.m. at least two (2) business days before the start of the calendar month The Company will not accept a Transportation Service Application which designates a Marketer that has not executed an Aggregation Pool Service Agreement.

If the Company receives more than one Transportation Service Application for the same FT-1 customer account with different designations of Marketer, the Company will contact the Customer for clarification and confirmation.

The Company will notify the Marketer of record via an EDI drop transaction in the event that a customer account assigned to the Marketer's Aggregation Pool is terminated.

Marketer must provide the Company with (30) days' advance notice in the event that the Marketer terminates service to a Customer in its Aggregation Pool.

Customers not subject to Default Transportation Service in Item 2.04 below, may return to sales service with at least thirty (30) days' advance notice, subject to availability, in the Company's sole discretion, of adequate gas transmission, gas supply and/or gas storage capability, and subject to the Company's Transitional Sales Service Rate, Section 5 Schedule H, of the Commercial and Industrial Services.

These provisions for switching Marketers or returning to Sales Service do not excuse the performance of any contractual obligations between the customer and a Marketer, including the potential requirement of paying damages to the Marketer for a breach of any such contractual obligation.

1.02.2 Non-Firm Transportation:

Switching Marketers is allowed at the start of any calendar month with the provision that the Company receive the Customer's Transportation Service Application designating the effective Marketer by 9 a.m. at least two (2) business days before the start of the month for which the switch is effective.

These provisions for switching Marketers do not excuse the performance of any contractual obligations between the customer and a Marketer, including the potential requirement of paying damages to the Marketer for a breach of any such contractual obligation.

If the Company receives more than one Transportation Service Application for the same customer account with different designations of Marketer, the Company will

TRANSPORTATION TERMS AND CONDITIONS

contact the Customer for clarification and confirmation.

1.03.0 Nominations:

1.03.1 General:

Marketer shall provide notice via the Company's Electronic Bulletin Board (EBB) the required information relative to Shipper and Transporting Pipeline names and contract number(s) on which deliveries will be made and the specified quantity of gas that Marketer will deliver to the Point(s) of Receipt on each day of the calendar month. Marketer is required to have separate nomination names and contract numbers for each of Marketer's Aggregation Pools. Additional information may be required by the Company. The Company will host an annual post-winter meeting with all Suppliers to discuss any proposed changes to the transportation program and the related requirements.

1.03.2 Dispatch Communication:

All nomination information shall be communicated to the Company's Gas Control Supply Operations Department via the Company's EBB. Marketer shall be responsible for monitoring the EBB 24 hours per day, seven days per week for dispatch purposes. In the event that the Company is unable to contact a Marketer regarding any nomination or dispatch, the Company may take any action it deems necessary to maintain system integrity as otherwise outlined in the General Terms and Conditions.

1.03.3 Initial Nominations:

The Nomination terms for FT-1 and NFT Service for deliveries to commence service on the first day of any calendar month will be submitted to the Company not later than the initial nomination deadline of the upstream Transporting Pipeline(s) transporting gas for Marketer. Such nominations will specify the quantity to be scheduled on each day of the month. The nomination requirements for FT-2 Service are described in Item 3.03 below.

As a condition of confirming any nomination, Company may direct Marketer to have gas delivered to an alternate Point of Receipt on the same Transporting Pipeline. Upon receipt of such directions, Marketer will arrange with the Transporting Pipeline to have gas delivered to the Point of Receipt designated by Company. Such alternate point of Receipt will remain the Point of Receipt for Marketer's gas for the period stated by the Company in its instructions until Company directs Marketer otherwise.

TRANSPORTATION TERMS AND CONDITIONS

1.03.4 Subsequent Nominations:

After the first day of the calendar month, Marketer may alter its nomination, provided that the revised nomination for delivery on any day is submitted to Company's EBB in accordance with the NAESB inter-day nomination schedule. The Company will accept on a best-efforts basis, an intra-day nomination submitted to the company's EBB up until 8:00 AM of the end of the gas day.

1.03.5 Intra-Day Nominations:

For daily metered Aggregation Pools, the Company will accept and implement, on a best-efforts basis, an intra-day nomination submitted to the Company's EBB following NAESB time lines.

One (1) such nomination per gas day shall be accepted subject to confirmation by the Transporting Pipeline.

1.03.6 Scheduling of Service:

Company will attempt to confirm with Transporting Pipeline(s) that the nominated quantities equal the Scheduled Transportation Quantity. If such nomination is confirmed, the Company will schedule said quantities to the Marketer at the designated Point of Receipt(s).

If Marketer is purchasing gas at the Company's city gate, they are responsible for identifying the original delivering contract number, Shipper and any additional title transfers.

If Marketer's nominations on the Company's Electronic Bulletin Board are not consistent with nominations on Transporting Pipeline, then the smaller of the two nominations shall prevail, and all associated balancing and penalty assessments shall be based on the smaller nomination.

TRANSPORTATION TERMS AND CONDITIONS

1.04.0 Protection Of System Operations:

1.04.1 Company Operational Flow Order (OFO):

Service hereunder may be limited as provided in the Company's General Terms and Conditions. Further, in the event that the Company determines in its sole judgment that it must take prompt action in order to maintain system integrity or to ensure Company's continued ability to provide service to its firm customers, the Company may declare a Critical Day or issue an OFO. In addition to the OFOs listed below, the Company shall have the right to issue any other OFO reasonably intended to serve the above stated purpose. The Company may take any one or more of the following actions:

(1) declare a Critical Day which would require Marketer to fully utilize upstream capacity that it received from Company through Capacity Release; and require Marketer to fully schedule storage resources allocated as part of FT-2 Service, i.e., up to the MDQ-U, prior to relying on peaking resources to the extent they are needed to meet their customer's demands;

(2) take any actions that are within Company's operational capability to reduce or eliminate Marketer or Aggregation Pool excess receipts; and

(3) take any actions that are within Company's operational capability to reduce or eliminate Marketer or Aggregation Pool excess takes.

When the Company issues an Operational Flow Order it will issue a notice to Marketers and state in the notice the balancing tolerances that will be in effect and, to the extent practicable, provide information on the cause and expected duration of the OFO. In addition, where the Company's need to issue an OFO is the result of its receipt of a notice of any kind from any of its pipeline transportation, storage, or peaking service providers, the Company will include that information in the notice and, to the extent possible, coordinate the duration and terms of its OFO with those of the service provider. Such an attempt to coordinate its OFO with those of its service providers will be based on the Company's sole discretion and such coordination will not limit the Company's ability to impose different terms or to continue or terminate its OFO at a time different from its service provider(s).

1.04.2 Pipeline Operational Flow Order:

If, at any time, an immediate upstream pipeline issues an order changing the requirements at the Point(s) of Receipt, then Company may so notify Marketer and direct Marketer to modify requirements at the Point(s) of Receipt to the extent necessary for Company to comply with the pipeline's order. Marketer will be

TRANSPORTATION TERMS AND CONDITIONS

responsible for coordinating with their customers regarding any necessary change to Customer's quantity of Gas Usage.

1.04.3 Marketer Responsibility:

In the event Company takes action to alleviate excess imbalances it will nonetheless remain the obligation of Marketer to make such further adjustments to nominations, both to Company, Shipper, and to Transporting Pipeline, during the remainder of the month to resolve accumulated imbalances or to account for subsequent changes in actual deliveries. Company's exercise of its authority under this section will have no effect on Marketer's liability for unauthorized overrun or imbalance penalties that apply to Marketer under this tariff or any similar charge, including scheduling penalties, imposed by any upstream Transporting Pipeline(s).

An operational flow order may be issued by the Company as a blanket order to all transportation customers, or to individual Marketer's Aggregation Pools, whose actions are determined by the Company to jeopardize system integrity.

For Critical Days or OFO's aggravated by under-delivery, the Marketer will be charged a penalty of 5 times the Daily Index for the aggregated Gas Usage of Customers in the Aggregation Pool that exceed 102% of the Marketer's aggregate actual receipts on the Transporting Pipeline at the Point of Receipt. The Marketer will be charged a penalty of 0.1 times the Daily Index for the differences between said receipts and said usage that exceed 20% of said receipts [(Receipts – Usage) > (20% x Receipts)].

For Critical Days or OFO's aggravated by over-delivery, the Marketer will be charged a penalty of 0.1 times the Daily Index for the aggregated Gas Usage of Customers in the Aggregation Pool that exceed 120% of the Marketer's aggregate actual receipts on the Transporting Pipeline at the Point of Receipt. The Marketer will be charged a penalty of 5 times the Daily Index for the differences between said receipts and said usage that exceed 2% of said receipts [(Receipts – Usage) > (2% x Receipts)].

1.05.0 Unauthorized Use:

In the event the Company provides a Marketer with as much notice as Company deems practicable of an Operational Flow Order per Item 1.04.0 or other curtailment of service and thereby reduces the Scheduled Transportation Quantity for delivery, the total Gas Usage by the Customer may not exceed the revised Scheduled Transportation Quantity. If, on any Gas Day, after notice of curtailment, the quantity of gas taken by Marketer's Customers in an Aggregation Pool, exclusive of NFT customers whose use under a curtailment is covered in Item 4.04 below, exceeds Marketer's Scheduled Transportation Quantity as so revised for

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the Aggregation Pool, and the Company has not authorized such excess quantity, then all such Gas Usage constitutes Unauthorized Use and is subject to an overrun penalty for each Dekatherm not delivered of five (5) times the Daily Index. Such charges will be billed to the Marketer's account.

1.06.0 Shipper And Transporting Pipeline Requirements:

Marketers must deliver a minimum of forty percent (40%) of total daily pipeline receipts (including all of the Marketer's Aggregation Pools serving both FT-1 and FT-2 customers) on each of the upstream pipelines: Algonquin Gas Transmission ("Algonquin") and Tennessee Gas Pipeline ("Tennessee"). The remaining twenty percent (20%) of total daily pipeline receipts (including all of the Marketer's Aggregation Pools serving both FT-1 and FT-2 customers) may be delivered on either or both Algonquin or Tennessee.

Marketer warrants with respect to each Aggregation Pool that it has entered into the necessary agreements for the purchase and delivery of a gas supply to the Point of Receipt which it wants Company to transport and that it has entered into the necessary transportation agreements for the delivery of gas supply to the Point of Receipt. Marketer acknowledges that it must arrange for the delivery of Actual Transportation Quantities to the Company sufficient to include both the Scheduled Transportation Quantities and the applicable Company Fuel Adjustments.

In addition, Marketer warrants that at the time of delivery of its gas supply to the Point of Receipt, Marketer shall have good title to such gas, free of all liens, encumbrances and claims whatsoever. Marketer shall indemnify the Company and save it harmless from all suits, actions, debts, accounts, damage, costs, losses and expenses arising from or out of any adverse legal claims of third parties to or against said gas supply.

1.07.0 Capacity Release:

Each Marketer serving any Customer migrating from (i) Firm Sales Service to FT-1 or FT-2 Transportation Service or (ii) another Marketer's Aggregation Pool where they were previously assigned pipeline capacity by the Company, will be required to accept, for each such Customer account, an assignment of a portion of Company's firm interstate pipeline transportation capacity at maximum rates for an initial term of up to one year.

The Company shall determine the quantity to be released based on the customer's calculated Peak Day Use and load factor rate class. The Company will separately calculate assignment percentages for high load factor rate classes and low load factor rate classes eligible for transportation for pipeline, storage and peaking. It will then multiply the pipeline percentage applicable to the Customer's rate class times the Customer's Peak Day Use to determine the amount of capacity to be assigned to the Marketer. The pipeline, storage and peaking allocation percentages will then be provided in the Company's annual Gas Cost

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Recovery filing.

The Company will provide Marketers with the calculated base and thermal factors used to estimate each customer's peak day use. The factors are provided based on the results of the Company's application of the specific methodology in this tariff and certain historical data. Marketers may not assume that use of the factors will yield correct estimates of any customer's use for any future period or that the capacity provided as a result of the calculation will meet the customer's requirements under all conditions.

The quantity of capacity shall be set forth in the confirmation materials provided to the Marketer. For all Customers classified as Small, Medium, Large, or Extra-Large, this quantity will be reviewed annually against the Customer's most recent usage patterns. Any change in Customer's required capacity will be reflected in a revised capacity release with the Marketer for effect on the following November 1. In the event that a Marketer stops delivering gas on behalf of an existing capacity exempt customer, the customer will be prohibited from taking firm Company sales service. Such customers will receive Default Transportation Service as described in Item 2.04.0 below.

Marketer shall be required to execute a Capacity Assignment Agreement at the time a Marketer establishes an Aggregation Pool or any other instruments reasonably required by Company or interstate pipeline necessary to effectuate such assignment. Marketer is responsible for utilizing and paying for the assigned capacity consistent with the terms and conditions of the interstate pipeline's tariffs and this tariff. Marketer is responsible for payment of all upstream pipeline charges associated with the assigned firm transportation capacity, including but not limited to demand and commodity charges, shrinkage, GRI charges, cash outs, transition costs, pipeline overrun charges, annual change adjustments and all other applicable charges. These charges will be billed directly to the Marketer by the interstate pipeline.

All Capacity Assignments for FT-1 Transportation Service will be effective with the commencement of service. Capacity Assignments for FT-2 Customers will be effective the first of the upcoming month for Transportation Service Applications received prior to the tenth. For FT-2 Service, EDI enrollments received on or after the tenth of the month, the capacity release will not be effective until the first of the month subsequent to the upcoming month.

Capacity Assignments will be effective for an initial term of up to one year through the following November 1. Capacity Assignments shall be reviewed each November 1 and be subject to annual adjustment as described above. The new capacity assignment percentages, along with the storage maximum daily quantities and maximum storage quantities in section 3.02.2, will be available on the Company's EBB. All releases hereunder will be subject to recall under the following conditions: (1) when required to preserve the integrity of the Company's facilities and service; (2) at the Company's option, whenever the Marketer fails

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to deliver gas in an amount equal to the Scheduled Transportation Quantity; and (3) any other conditions set forth in the capacity release transaction between the Marketer and the Company.

The Company shall assess a surcharge/credit to Marketers based on the difference between the charges of the upstream pipeline transportation capacity and the weighted average of the Company's upstream pipeline transportation capacity charges as calculated by the Company. To the extent that the charges of such released pipeline capacity are greater than the weighted average charges, the Marketer shall receive credit for such difference in charges based on the total quantity of capacity released by the Company to the Marketer. The per Dt charge is calculated by subtracting the charge per Dt for the released pipeline capacity from the Company's weighted average Upstream Transportation charges as identified in the Company's annual Gas Cost Recovery Filing. To the extent that the cost of such released pipeline capacity is less than the weighted average cost, the Marketer shall be surcharged for such difference.

During the calendar month of September, each Marketer will be required to submit a new Capacity Assignment Agreement indicating pipeline capacity path preferences based on the available paths identified in the Company's annual Gas Cost Recovery Filing. Any changes from the Marketer's previous election will be effective November 1 in conjunction with the updating of customer capacity quantities described above.

Each Marketer's capacity assignment associated with Customers in an aggregation pool shall be reviewed on a monthly basis prior to the tenth (10th) calendar day of the month, and adjusted to reflect any net changes resulting from the addition and deletion of customers to the pool.

1.07.1 Capacity Exemption for New Firm Loads:

New Customers requesting firm service that are classified as Large or Extra-Large and electing FT-1 transportation service will not be required to take assignment of the Company's capacity resources as described in 1.07.0 above and must notify the Company in writing of its intent to be Capacity Exempt. The New Customer must also initiate gas supply service from a Marketer within 60 days after the start of distribution service. In the event that the New Customer does not obtain a Marketer within 60 days of the commencement of distribution service, the Customer will be prohibited from receiving Company-supplied firm sales service and will receive and be billed for Default Transportation Service as described below in Item 2.04.0. The consumption of such Customers may be subject to annual review and confirmation by the Company. Customers who fail to meet the minimum requirement for the Large classification shall be required to take assignment of the Company's capacity resources after no less than 60 days' notice. Marketers for such customers may be responsible for obtaining citygate capacity at a specific citygate on the Company's

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system as determined by the Company. Such determination will be based on the customer's location, load characteristics and distribution system requirements.

In the event that a Marketer stops delivering gas on behalf of a customer without Company assigned pipeline capacity, the customer will be prohibited from taking firm Company sales service. Such customers shall receive and be billed for Default Transportation Service as described in Item 2.04.0 below.

1.07.2 Capacity Exemption for Non-Firm Customers Converting to Firm Service:

Non-Firm Sales and Non-Firm Transportation Customers classified as Large or Extra-Large who have been approved by the Company to receive firm distribution service and have elected FT-1 transportation service must, no later than 90 days' notice before the commencement of distribution service, either (i) request in writing a Capacity Assignment from the Company, or (ii) notify the Company in writing of its intent to retain its Capacity Exempt status. In the event that a Customer who has requested to retain its Capacity Exempt status but does not have a Marketer at the time the Customer begins receiving firm distribution service, the Customer will be prohibited from taking Company-supplied firm sales service and will receive and be billed for Default Transportation Service as described below in Item 2.04.0. The consumption of such Customers may be subject to annual review and confirmation by the Company. To qualify for Capacity Exempt status, Marketers for such Customers may be responsible for obtaining citygate capacity at a specific citygate on the Company's system as determined by the Company. Such determination will be based on the Customer's location, load characteristics, and distribution system requirements. For those Non-Firm Customers converting to firm distribution service and requesting an assignment of the Company's pipeline capacity, the Company must respond in writing within 30 days regarding the availability of pipeline capacity. If the Company is not able to provide a capacity assignment, the Customer will retain its Capacity Exempt status and will be prohibited from taking Company-supplied firm sales service and will receive and be billed for Default Transportation Service as described below in Item 2.04.0.

In the event that a Marketer stops delivering gas on behalf of a Customer who does not have an assignment of the Company's pipeline capacity, the Customer will be prohibited from taking Company-supplied firm sales service. If the Customer is unable to secure a gas supply from a Marketer, the customer will receive and be billed for Default Transportation Service as described below in Item 2.04.0.

1.08.0 Facilities:

The Company shall own, operate and maintain, at its expense, its gas distribution facilities to

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the Point of Delivery. The Customer shall furnish, maintain and operate the facilities required between Company's Point of Delivery and the Customer's equipment.

1.9.0 Quality:

Marketer is responsible for insuring that all gas received, transported and delivered hereunder to the Point of Receipt meets the quality specifications and standards outlined in the General Terms and Conditions of the Transporting Pipeline's FERC Gas Tariff.

1.10.0 Possession of Gas:

Company shall be deemed to be in control and possession of transportation gas to be delivered in accordance with this service from receipt at the Point(s) of Receipt until it shall have been delivered to Customer at the Point of Delivery. Marketer shall be deemed to be in possession and control of the gas prior to such receipt by the Company and Customer shall be deemed to be in control and possession of transportation gas after such delivery by the Company to the Point of Delivery. Company shall have no responsibility with respect to such gas before it passes the Point of Receipt or after it passes such Point of Delivery or on account of anything which may be done, happen or arise with respect to such gas after Point of Delivery.

1.11.0 Provision of Future Taxes, Surcharges Fees, Etc.:

In the event a tax of any kind is imposed or removed by any government authority upon the sale or transportation of gas or upon the gross revenues derived therefrom (exclusive, however, of taxes based on Company's net income), the rate for service to Customer and/or Marketer, as the Company deems appropriate, shall be adjusted by an amount equal to or otherwise properly reflecting said tax. Similarly, the effective rate for service hereunder shall be adjusted to reflect any refund or imposition of any surcharges or penalties applicable to service hereunder which are imposed or authorized by any governmental authority.

1.12.0 Retention of Pipeline Fuel Adjustment:

The Company shall retain in kind, from the quantities of gas actually delivered to the Point(s) of Receipt for Marketers' accounts, the amount thereof equal to the applicable Company Fuel Allowance. Such Company Fuel Allowance shall be calculated by the Company based upon an average of the Company's most recent five (5) years' experience, fuel loss and unaccounted for or similar quantity based adjustments.

1.13.0 Limitations of Liability:

The liability of the Company shall be limited in accordance with the provisions of the

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Company's General Terms and Conditions.

1.14.0 Force Majeure:

Neither Company nor Marketer shall be liable to the other or to Customer for delays or interruptions in performing their respective obligations hereunder arising from any acts, delays or failure to act on the part of, or compliance by Marketer or Company with any operating standard imposed by any governmental authority, or by reason of an act of God, accident or disruption, including without limit, strikes or equipment failures, or any other reason beyond Marketer's or Company's control, provided, however, in the event of an occurrence of one or more of the foregoing events, reasonable diligence shall be used to overcome such event. The party claiming force majeure shall, on request, provide the other party with a detailed written explanation thereof, and of the remedy being undertaken.

1.15.0 Electronic Data Interchange (EDI):

The Company will require use of EDI for all transactions associated with account administration, usage and billing, and payments for the FT-2 service. The transactions requiring EDI communication are enrollments, drops, adjustments and historical usage. EDI will also be available for requesting historical usage, switching and drops for FT-1 accounts. The detail information on EDI processing is available to Marketers on request. All Marketer EDI transaction sets will be tested prior to operational implementation.

2.0 FT-1 TRANSPORTATION SERVICE:

2.01.0 Character of Service:

This service provides firm, 365 day transportation of Customer purchased gas supplies to customers electing to have Gas Usage recorded on a daily basis at the Point of Delivery. The Customer shall identify on the Transportation Service Application a Marketer that it has designated to perform initial and subsequent nominations, to receive scheduling and other notices from the Company, and to do balancing. Such Marketer shall assign Customer to an Aggregation Pool with other Customers electing FT-1 or NFT service or establish a one-customer Aggregation Pool and execute an appropriate Marketer Aggregation Pool Service Agreement. Specific Marketer requirements and obligations are described in Item 5.0 below.

2.02.0 Telemetering:

The Company will provide at the Customer's expense, at the Point of Delivery to the Customer, a device that the Company will attach to its metering equipment for the purpose of monitoring the Gas Usage. The Customer shall be responsible to supply a dedicated electrical supply and a telephone line at a location acceptable to Company and capable of

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transmitting information collected from the monitoring device to the Company's computer system. The Customer shall be responsible for the maintenance and service of the telephone line. Should a dedicated phone line be required, it is the responsibility of the Customer to schedule the installation, to notify Company when such installation has been completed, and the Customer is responsible for any associated charges. FT-1 and NFT transportation service shall not commence until the telemetering equipment is in place and operational.

2.03.0 Balancing:

FT-1 and NFT Service is subject to both Daily and Monthly balancing provisions. It will be the Marketer's responsibility to provide accurate and timely nominations of quantities proposed to be received and delivered by Company under this service and to maintain as nearly as possible, equality between the Gas Usage and the Actual Transportation Quantity. Marketer shall be solely responsible for securing faithful performance by Shipper and Transporting Pipeline, and the Company shall not be responsible as a result of any failure of Shipper or Transporting Pipeline to perform. Charges and Penalties associated with FT-1 and NFT balancing are billed to the Marketer.

2.03.1 Daily Imbalances:

The Marketer must maintain a balance between daily receipts and daily usage within the following tolerances:

Off-Peak Season:	The difference between the Marketer's Aggregation Pool actual receipts and the aggregated gas usage of customers in the Aggregation Pool shall be within 15% of said receipts. The Marketer shall be charged a penalty of 0.1 times the Daily Index for all differences not within the 15% tolerance.
Peak Season:	The difference between the Marketer's Aggregation Pool actual receipts and the aggregated gas usage of customers in the Aggregation Pool shall be within 10% of said receipts. The Marketer shall be charged a penalty of 0.5 times the Daily Index for all differences not within the 10% tolerance.
Critical Day(s):	The Company will determine if the Critical Day will be aggravated by an under-delivery or an over-delivery, and so notify the Marketer when a Critical Day is declared pursuant to Item 1.05 above.

If the Marketer does not deliver gas on the transporting pipelines as required in Item 1.06.0 above, the Company may charge the Marketer a penalty of 0.5 times the Daily

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Index for all differences less than the forty (40) percent minimum requirement on each transporting pipeline.

If the Marketer has an accumulated imbalance within a month, the Marketer may nominate to reconcile such imbalance, subject to the Company's approval, which approval shall not be unreasonably withheld.

2.03.2 Monthly Imbalances:

For each Aggregation Pool, the Marketer must maintain total Actual Transportation Quantities within a reasonable tolerance of total monthly Gas Usage. Any differences between total Monthly Transportation Quantities for an Aggregation Pool and the aggregated Gas Usage of Customers in the Aggregation Pool, expressed as a percentage of total Monthly Transportation Quantities will be cashed out according to the following schedule:

Imbalance Tier	Over-deliveries	Under-deliveries
0% ≤ 5%	The average of the Daily Indices for the relevant Month relevant Month	The highest average of seven consecutive Daily Indices for the
> 5% ≤ 10%	0.85 times the above stated rate	1.15 times the above stated rate
> 10% ≤ 15%	0.60 times the above stated rate	1.4 times the above stated rate
> 15%	0.25 times the above stated rate	1.75 times the above stated rate

For purposes of determining the tier at which an imbalance will be cashed out, the price will apply only to volumes within a tier. For example, if there is a 7% Under-delivery on a Delivering Pipeline, volumes that make up the first 5% of the imbalance are priced at the highest average of the seven consecutive Daily Indices. Volumes making up the remaining 2% of the imbalance are priced at 1.15 times the average of the seven consecutive Daily Indices.

All cash-out charges or credits, as determined above, will be applied to the Marketer's monthly invoice for the Aggregation Pool.

Designated Marketers may arrange with another of Company's Marketers providing

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service to the same Point of Receipt to exchange, purchase or sell daily or monthly imbalance gas. The Company will notify each Marketer of its monthly imbalance following the close of the billing month in which the imbalance occurs. Marketers will have three business days following such notification to notify Company of any imbalance exchange or sale and to confirm such transaction.

2.03.3 Pass-Through of Upstream Imbalance Charges:

In addition to other charges provided for in this Section, Marketer will be responsible for any imbalance charge or penalty imposed on Company by an upstream pipeline as a direct result of an imbalance, scheduling error, unauthorized overrun or other similar charges caused by Marketer. The Company shall assign imbalance penalties assessed to the Company by upstream pipelines to sales and transportation customers based on the extent that each group caused such penalties, as determined by the Company. The portion of any such penalty assigned to transportation service shall be further assigned to individual Marketers based on the extent to which each Marketer's Aggregation caused such penalties, as determined by the Company.

2.04.0 Default Transportation Service:

Default Transportation Service is available to any Commercial or Industrial customer account classified as Large or Extra Large that subscribes to FT-1 Transportation Service and that does not have pipeline capacity assignment from the Company. Customers will receive this service as a result of their marketer no longer delivering gas on their behalf. Such service will continue in effect until either service is established with a new marketer through the execution of a new Transportation Application per Item 1.03.1 above or service is terminated.

This service provides for a continuous supply of gas of not less than 1,000 Btu per cubic foot, and is provided on a best efforts basis with as little as 24 hours advance notice. Where notification is at least 24 hours in advance but less than three business days before the start of a calendar month, the service provided will be Short-Notice Default Transportation Service. Where notice is provided at least three business days prior to the start of a calendar month, the service provided will be Advance-Notice Default Transportation Service. Short-Notice Default Transportation Service will be switched to Advance-Notice Default Transportation Service at the start of a subsequent month once the service has been in effect for the three business day period before the start of such month.

Default Transportation Service is a temporary surrogate for provision of gas to a customer that would otherwise be provided by a marketer, hence it includes nominating and balancing. Customer must maintain an operational telemetering device as required in Item 2.02.0 above.

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2.04.1 Rates:

As indicated in Item 2.04.0 of Section 6, Schedule C of the Company's Transportation Terms and Conditions, two Default Transportation Services are available in the event that a marketer stops delivering gas on behalf of Large and Extra Large FT-1 customers who have elected to forgo the Company's assignment of pipeline capacity:

Short-Notice Service:

The commodity charge for Short-Notice service shall be the higher of:

a. The Company's applicable firm sales rate

OR

b. Winter (November – March) – 135% of the Daily Algonquin Citygates average price or 135% of the Daily Tennessee Zone 6 (delivered) average price published in Gas Daily. The citygate (Algonquin or Tennessee) used for pricing shall be based on the customer's location, load characteristics and distribution system requirements in accordance with Item 1.08.1 of the Company's Transportation Terms and Conditions. The published price will be adjusted for Company Fuel Allowance and GET as appropriate.

   Summer (April – October) – 115% of the Daily Algonquin Citygates average price or 115% of the Daily Tennessee Zone 6 (delivered) average price published in Gas Daily. The citygate (Algonquin or Tennessee) used for pricing shall be based on the customer's location, load characteristics and distribution system requirements in accordance with Item 1.08.1 of the Company's Transportation Terms and Conditions. The published price will be adjusted for Company Fuel Allowance and GET as appropriate.

Advance-Notice Service:

The commodity charge for Advance-Notice service shall be the higher of:

a. The Company's applicable firm sales rate

OR

b. Winter (November – March) – 135% of the Algonquin Citygates Monthly Contract Index price or 135% of the Tennessee Zone 6 (delivered) Monthly Contract Index price published in the Gas Daily Price Guide. The citygate

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(Algonquin or Tennessee) used for pricing shall be based on the customer's location, load characteristics and distribution system requirements in accordance with Item 1.08.1 of the Company's Transportation Terms and Conditions. The published price will be adjusted for Company Fuel Allowance and GET as appropriate.

Summer (April – October) – 115% of the Algonquin Citygates Monthly Contract Index price or 115% of the Tennessee Zone 6 (delivered) Monthly Contract Index price published in the Gas Daily Price Guide. The citygate (Algonquin or Tennessee) used for pricing shall be based on the customer's location, load characteristics and distribution system requirements in accordance with Item 1.08.1 of the Company's Transportation Terms and Conditions. The published price will be adjusted for Company Fuel Allowance and GET as appropriate.

3.0 FT-2 TRANSPORTATION SERVICE:

3.01.0 Character of Service:

This service provides firm, 365 day transportation of Customer purchased gas supplies to customers without the requirement for recording daily Gas Usage at the Customer's Point of Delivery. Daily Nominations are calculated by the Company on the basis of a consumption algorithm, and the Marketer is obligated to deliver to the city gate and/or nominate the purchase of underground storage and peaking supplies at the city gate sufficient to meet the forecasted daily usage of its FT-2 pool customers.

The Customer's designated Marketer shall be allocated a quantity of Company contracted underground storage and peaking resources which, when combined with the pipeline capacity released, will be sufficient to meet the Customer's calculated Peak Day Use. The Marketer may purchase supplies delivered to the Company's city gate based on the Company's storage and peaking supply capabilities and costs. The ability to purchase supplies is made available to the Marketer pursuant to a written agreement with the Company, for the purpose of meeting the Company forecasted daily usage under the operational parameters described below. Additional Marketer requirements and obligations are described in Item 5.0 below.

3.02.0 Storage And Peaking Resources:

As described in Section 6, Schedule C. 1.07.0 above, the Company will annually calculate a Customer's total storage and peaking resource requirements based on the Customer's calculated Peak Day Use. It will then multiply the storage and peaking percentage applicable to the Customer's rate class times the Customer's Peak Day Use to determine the amount of capacity to be assigned to the Marketer for storage and peaking, respectively.

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3.02.1 Maximum Daily Quantity (MDQ):

The result of the calculations above will establish the Customer's Maximum Daily Quantity (MDQ-P) and (MDQ-U). These parameters represent the maximum storage and peaking quantities available to the Marketer each day for meeting the Customer's Gas Usage needs.

3.02.2 Maximum Storage Quantity (MSQ):

The Customer's Maximum Underground Storage Quantity (MSQ-U) is calculated as the maximum storage quantity from underground storage over the course of the November to March withdrawal season and is calculated by the Company by multiplying the Customer's MDQ-U times the weighted average number of days of service available to the Company under its various underground storage agreements.

The Customer's Maximum Peaking Storage Quantity (MSQ-P) is calculated as the maximum amount of peaking storage over the course of the November to March withdrawal season and is calculated by multiplying the MDQ-P times the number of days that the Company's available LNG, net of amounts required for pressure support, boil-off and any heel quantities, could be used at 100% output. These quantities serve to define the maximum quantities that can be nominated for purchase by a Marketer and are a component of the operational parameters for the service.

3.02.3 Operational Parameters:

The available for the Underground Storage and Peaking accounts shall be tracked by the Company and made available to the Marketers via electronic means. These balances will be updated each Gas Day to reflect Marketer nominations for purchase.

The Company will establish monthly maximum purchase levels reflective of the Company's available resources and the Marketers Maximum Storage Quantities, MSQ-U and MSQ-P. There will be separate purchase levels for each month for both Underground Storage and Peaking Resources. Such levels will be as provided in the annual Gas Cost Recovery Filing.

In addition to operational parameters for monthly purchase levels, there are daily maximums established for the quantities which the Marketer can nominate for purchase. These factors vary by month and as the Marketer's entitlement level changes. Such factors will be based on the Marketer's total MDQ, the Company's storage contracts and peaking supply capabilities and will be as provided in conjunction with the annual Gas Cost Recovery Filing.

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3.02.4 Purchases:

The Company will update an FT-2 aggregation pool's MSQ-U, MSQ-P, MDQ-U and MDQ-P assignments in total and for each month concurrent with the Customer's initiation of transportation service with the designated Marketer.

Marketer will then be entitled to purchase from the Company the available amount of underground storage for the month on any day up to its allowed MDQ for the month until the cumulative purchases for the month equal the monthly limit. The purchases will be at a rate calculated as indicated below. The estimated rate will be provided to the marketers by the second business day of the month in which the purchase is being made.

The Company shall develop a price for the purchases based on the Company's underground storage inventory price at the beginning of the month and for the variable costs associated with the withdrawal of the gas from storage and the transportation of the gas to the system.

The price per Dt at the Company's city gate shall be calculated using the following formula:

$/Dt = (((IP/(1-SLF) + WWCC)/(1-PLF)) + PCC)

Where:

$/Dt	cost per Dekatherm charged to Marketers for underground storage inventory at the Company's city gate
IP	Underground Storage Inventory Price at Beginning of the month
SLF	Weighted Average Loss Factor on Storage Withdrawals
WWCC	Weighted Average Withdrawal Commodity Charges
PLF	Weighted Average Pipeline Loss Factor
PCC	Weighted Average Pipeline Commodity Charge.

The rate components SLF, WWCC, PLF and PCC are as calculated in the Company's most recent Gas Cost Recovery Filing.

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Marketers will be entitled to purchase peaking inventory at the Company's cost of LNG inventory and Weighted Average commodity charge of pipeline supplies designated by Company as peaking resource.

3.02.5 Demand Rates:

The FT-2 Demand Rate is designed to recover the fixed costs and other miscellaneous costs associated with the provision of the underground storage and peaking resources and is billed to the Marketer:

$/DT	cost per Dekatherm charged to Marketers per unit of MDQ where MDQ = MDQ-U plus MDQ-P.

The FT-2 demand rate is as calculated in the Company's most recent Gas Cost Recovery Filing. The calculation is in Section 2, Gas Charge, Schedule A, Item 3.3.

3.03.0 Nominations:

The Company shall calculate the Forecasted Daily Usage (FDU) of the aggregation pool using a Consumption Algorithm for each of the customers in the aggregation pool. The Company shall have sole responsibility for such Consumption Algorithm and by selecting FT-2 service, Marketer agrees to abide by the results of such algorithm. The algorithm is:

FDU = Base Load + (HU factor * FDD)

Where:

FDU	an individual customer account's forecasted daily usage for the next gas day
Base Load	average daily consumption for the most recent July and August billing cycles
HU Factor	most recent billing cycle consumption, minus the base load, divided by the heating degree days for the billing cycle
FDD	forecasted heating degree days for the gas day starting at 10:00 AM the next day

FDU will be adjusted for any Company fuel allowance.

The Company will provide to the Marketer no later than 9:30 AM each day using an electronic posting or via facsimile the FDU for the next gas day which would start at 10:00 AM the next day. If the Company is unable to provide to the Marketer the FDU using an electronic posting or via facsimile before 9:30 AM, the default FDU will be the prior day's

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FDU. The Marketer shall be obligated to nominate any combination of pipeline, underground storage or peaking equal to the FDU for the next gas day. Such nomination is to be posted on the Company's Electronic Bulletin Board in the timely cycle before the start of the next gas day. The Company shall not accept or confirm any nominations that are greater than the FDU of the aggregation pool and any nominations for storage and peaking resources must be in accordance with the applicable operational parameters. When the Marketer's cumulative storage or peaking use for the month reaches the Marketer's maximum storage or peaking use for the month, the Marketer will not be able to nominate storage or peaking quantities to satisfy the FDU nomination requirement.

3.03.1 Critical Days:

To satisfy the FDU nomination requirement on Critical Days, the Marketer is required to fully utilize upstream capacity that it received from Company through Capacity Release so as to help avoid restricting the Company's ability to provide efficient and reliable firm transportation and sales service. Notice of Critical Days will be posted on the EBB no later than concurrent with the posting of the FDU nomination requirement.

3.03.2 Over- and Under-deliveries:

If the Company declares an OFO or critical day condition reducing the tolerance for under-deliveries, any under-deliveries of the aggregation pool's gas requirements, up to the FDU, will be treated as Unauthorized Use and subject to penalty charges as provided in Item 1.05.0 above. Under-deliveries at times when an OFO or critical day have not been declared will be cashed out at 120% of daily index.

If the Company declares an OFO or critical day condition reducing the tolerance for over-deliveries, any over-deliveries of the aggregation pool's gas requirements, above the FDU, will be cashed out at 40% of the daily index. In addition, the Company reserves the right to reject such a nomination. Over-deliveries at other times will be cashed out at 80% of Daily Index.

3.03.3 FDU Weather True-up Cash Out:

Each month, the forecasted daily use (FDU) for each day will be recalculated and the change in consumption attributable to differences between the original forecasted degree days and actual degree days will be calculated. Each day's change in consumption will be cashed out at that day's published Daily Index.

3.04.0 Billing Imbalances:

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Imbalances between customer Gas Usage and the Forecasted Daily Usage (FDU), adjusted for actual weather, will be cashed out at the average of the Algonquin and Tennessee city gate delivered monthly indexes. The Company will prorate the imbalance amount between the months billed based on the customer's base load and heating use factors and apply the average monthly index to the corresponding month's imbalance quantity, calculated as follows:

MU = (Base Load * Number of billed days in month) + (HU Factor * ADDM)

Where:

MU	Usage attributable to that individual month
Base Load	average daily consumption for the most recent July and August billing cycles
HU Factor	most recent billing cycle consumption, minus the base load, divided by the heating degree days for the billing cycle
ADDM	actual degree days for the billing period

The imbalance amount will be a credit if deliveries exceed the customer's use and a debit if deliveries are less than the customer's use. The billed imbalance amount for any billing will be the sum of the imbalance charges or credits attributable to each individual month included in the bill. The charges or credits for the individual months will be calculated as follows:

IBM = (MU – FDUM) * (AGTI + TGPI) / 2

Where:

IBM	Individual Billing Month charge/credit
AGTI	Algonquin Pipeline published price Index for the month
TGPI	Tennessee Pipeline published price Index for the month

All quantities will be adjusted for Company Fuel Allowance.

4.0 NFT SERVICE:

4.01.0 Character Of Service:

TRANSPORTATION TERMS AND CONDITIONS

This service provides interruptible transportation of Customer purchased gas supplies to customers with telemetering equipment and that are eligible to be classified under Section 6, Schedule A of the Company's Tariff. The Customer shall identify on the Transportation Service Application a Marketer that it has designated to perform initial and subsequent nominations, to receive scheduling and other notices from the Company, and to do balancing. Such Marketer may assign Customer to an Aggregation Pool with other Customers electing NFT or FT-1 transportation service or establish a one-customer Aggregation Pool. Specific Marketer requirements and obligations are described in Item 5.0 below. A Customer receiving NFT service does not have pipeline capacity assignment from the Company.

4.02.0 Nominations:

The nomination requirements in Item 1.04.0 above apply to the provision of NFT Service.

4.03.0 Imbalances:

The Daily and Monthly Imbalance provisions in Items 2.03 above apply equally here.

4.04.0 Curtailments:

The notification of interruption or curtailment and the provisions of failure to curtail are described in Section 6, Schedule A, Item 8.0 and Item 9.0.

5.00 MARKETER AGGREGATION SERVICE:

5.01.0 Character of Service:

This service allows Marketers to aggregate customer accounts and form Aggregation Pools for the purpose of making initial and subsequent nominations, making delivery to a designated Point of Receipt, and for balancing of Actual Transportation Quantity with Gas Usage on Customer's behalf. The Company will transport gas, owned by the Customers of the Aggregation Pool, to the Point(s) of Delivery for each Customer included in such pool. A Marketer shall be designated by each Customer on the Transportation Service Application, and each such customer must be assigned by the Marketer to an Aggregation Pool of one or more customers. Changing the designated Marketer is allowed under the conditions in Item 1.02 above and is accomplished through the execution of a new Transportation Service Application. Once so designated, the Company will rely on information provided by the Customer's Marketer for nomination, balancing and scheduling

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purposes and all notices provided by the Company to Customer's Marketer shall be deemed to have been provided to the Customer.

5.02.0 Aggregation Pools:

The aggregation of Customer accounts into an aggregation pool is limited by the transportation service of the respective Customers.

The Customer's transportation service restriction requires that Customers subscribing to non-daily metered FT-2 Service must be aggregated in a separate pool from Customers subscribing to daily metered FT-1 or NFT Service. Customers subscribing to FT-1 or NFT can be combined in a single Aggregation Pool. A separate Marketer Account will be established for each Marketer Aggregation Pool.

The Marketer Aggregation Pool Service Agreement have an initial term through the following November 1. Thereafter, the Pool Service Agreement shall be automatically renewed for successive one year terms, unless notice of termination is provided by the Marketer on or before October 1 or if the Company has terminated the agreement under its collection procedures. Marketers may assign their Aggregation Pool Service Agreements to another certified Marketer with the Company's consent.

5.03.0 Marketer Qualifications:

In order to be designated hereunder as a Marketer, the Marketer must meet the following qualifications:

(1) The Marketer must be authorized by the PUC in accordance with PUC Regulations for Utility Interaction with Gas Marketers;

(2) The Marketer must demonstrate to the Company that it meets the following creditworthiness standards:

A. The Marketer, or a guarantor, maintains a minimum rating from one of the rating agencies and no rating below the minimum from one of the other two rating agencies. For the purposes of this Section, minimum rating shall mean "BBB" from Standard & Poor's, "Baa2" from Moody's Investor Service, or "BBB" from Fitch Ratings (minimum rating)

B. If a Marketer or a guarantor, is not rated by Standard & Poor's, Moody's Investor Service or Fitch Ratings, it shall satisfy the Company's creditworthiness requirements if the Marketer, or a guarantor maintains a minimum "1A2" rating from Dun & Bradstreet (Dun and Bradstreet minimum rating) and the Marketer maintains 24 months good payment history with the Company

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C. In the event that the Marketer has not met the credit standards above, then the Marketer must so notify the Company and the Marketer will be required to use one of the financial vehicles specified in 5.03.3 to satisfy the Company's credit standards.

(3) Marketers must have an executed Marketer Aggregation Pool Service Agreement with the Company and accepted its designation as the marketer for each customer by countersigning the applicable Transportation Service Application.

(4) Marketers must provide the Company with a copy of their GET exemption certificate, state sales tax exemption certificate or other appropriate exemption certificate(s) in order to be exempt from the applicable taxes.

5.03.1 Marketer Disqualification:

A Marketer may be disqualified from participating in the transportation program for any of the following conditions:

(1) Failure to continue to meet all the conditions set forth in Section 5.03.0 with respect to authorization by the PUC and the credit standards set out in 5.03.0, and abide by the terms and conditions of the Marketer Aggregation Pool Service Agreement set forth in Section 6.0.

(2) Failure to pay an invoice from the Company on the due date or maintain sufficient credit. If Marketer fails to pay an invoice on the due date or the Marketer's credit limit or security is insufficient to cover the unpaid amount, the Company may discontinue participation in the customer transportation program; provided however, that at the Marketer's request, the Company will allow up to 10 business days for the Marketer to cure any failure to pay or any shortfall provided such action, as determined solely by the Company, will not result in harm to its customers or the gas system.

(3) If a Marketer, through its actions, causes a significant risk or condition that compromises safety, system security or operational reliability and fails to eliminate that risk or condition when notified, the Company may immediately discontinue the Marketer's participation in the customer transportation program.

(4) If the Marketer fails to provide supply at a level that reasonably matches its customers' daily requirements for its daily balanced pool or, when directed by the Company to deliver a certain quantity under the FT-2 service it fails to deliver the required amount, the Company may discontinue the Marketer's participation in the customer transportation program.

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5.03.2 Calculation of Credit Risk and Security for Natural Gas Imbalance Risk:

The Company may require a Marketer to provide security equal to three times the highest month's gas usage of the Marketer's Aggregation Pool at the firm sales rate applicable to the upcoming peak period. This amount may be updated at the Company's discretion

5.03.3 Security Instruments:

The following financial arrangements are acceptable methods of providing security:

(1) Deposit or prepayment, which shall accumulate interest at the applicable rate per annum approved by the Rhode Island Public Utilities Commission;
(2) Standby irrevocable letter of credit or surety bond issued by a bank, insurance company or other financial institution with at least an "A" bond rating;
(3) Security interest in collateral; or,
(4) Guarantee by another party or entity with a credit rating of at least "BBB" by S&P, "Baa2" by Moody's, or "BBB" by Fitch; or
(5) Other means of providing or establishing adequate security.

The Company may refuse to accept any of these methods for just cause provided that its policy is applied in a nondiscriminatory manner to any Marketer.

If the credit rating of a bank, insurance company, or other financial institution that issues a letter of credit or surety bond to a Marketer falls below an "A" rating, the Company shall allow a minimum of five business days for a Marketer to obtain a substitute letter of credit or surety bond from an "A" rated bank, insurance company, or other financial institution.
The Marketer agrees that the Company has the right to access and apply the deposit, letter of credit or other financial vehicle to any payment obligations, not in dispute, which are deemed by the Company to be late. The Company may review and determine the status of a Marketer's creditworthiness at its sole discretion. If Marketer is unable to maintain the Company's credit approval or otherwise ceases to meet the Marketer Qualifications, the Company may terminate the Marketer Aggregation Pool Agreement as of the first day of the month following written notice to Marketer.

5.04 Intentionally Left Blank

5.05 Billing:

Billing for monthly customer charges and transportation charges for quantities actually delivered shall be based on the readings at each individual meter for the Customer and billed

TRANSPORTATION TERMS AND CONDITIONS

on a billing cycle basis to the Customer. The Customers and Marketers shall be liable for all rates, charges and surcharges allowed for in the Company's Rate Schedules related to transportation services provided to each customer individually.

Calculation of charges applicable to the Aggregation Pool will be based on aggregated Gas Usage, MDQ's, etc. of all Customers in the Aggregation Pool. Billing for charges applicable to an Aggregation Pool, e.g., imbalance charges, credits or penalties, and FT-2 Throughput charges shall be billed to the Marketer on a calendar month basis.

All bills rendered to the Marketer are due within ten (10) days from the date of the invoice. A late payment charge, in accordance with regulations of the Rhode Island Public Utilities Commission and the Rhode Island Division of Public Utilities and Carriers, shall accrue after ten (10) days.

6.0 SERVICE AGREEMENTS: (See Attached Sheets)

TRANSPORTATION TERMS AND CONDITIONS

The Narragansett Electric Company, Transportation Service Application

This Transportation Service Application ("Application") must be completed by the customer and the marketer prior to the commencement of the requested Transportation Service.

NG:	The Narragansett Electric Company d/b/a National Grid 175 East Old Country Road Hicksville, NY 11801 Attn: Supplier Services	Customer:	_____ _____ _____ ( ) _____
Notice to:	Customer Contact Center: 1-800-870-1664	Notice to:	_____ ( ) _____

The Customer hereby requests Transportation Service subject to the NG General Terms and Conditions, Section 1 of RIPUC NG-GAS No. 101, its Transportation Terms and Conditions, Section 6, Schedule C and, under the terms and conditions set forth herein. NG shall review this Application and notify the Customer of its approval or rejection by way of a Confirmation Letter that shall set forth the terms and conditions of the Customer's Transportation Service. Upon Customer's and Marketer's fulfillment of all conditions set forth in the Confirmation Letter, such Confirmation shall represent an Agreement by NG to provide Transportation Service consistent with this Application and the Transportation Terms and Conditions set forth in Section 6, Schedule C of RIPUC NG-GAS No. 101.

Account Number	Meter Number	Service Address	FT-1	NFT
1)				
2)				
3)				

1. Transportation Service shall commence in accordance with Item 1.02, Section 6, Schedule C of RIPUC NG-GAS No. 101
2. FT-1 and NFT Services require telemetry. A telemetering device and related equipment installed by NG shall remain NG property at all times. The Customer shall provide NG with access to a phone line that meets NG specifications for telemetering purposes. The customer is financially obligated for the costs to acquire, install and operate the telemetering device and related equipment.
3. Provision of transportation service based on this Application shall have an initial term through the following November 1st, unless sooner terminated in accordance with the terms and conditions of NG's Tariff, and shall continue thereafter from year to year unless terminated by customer, Marketer, or NG upon not less than 30 days prior written notice.

Public Regulation

The Narragansett Electric Company is a public utility subject to regulation by the Rhode Island Public Utilities Commission ("Commission"). The provision of transportation service as a result of this Application is subject to any limitations, modifications or amendments ordered by the Commission, regardless of whether said order resulted from a petition, request or other solicitation directed to the Commission by a party to this Application. Compliance by NG with any order, rule, regulation or policy statement of the Commission, or of any other federal, state or local governmental authority, whether issued before or after the commencement of transportation service, shall relieve NG of its obligations hereunder as a result of such compliance. In the event of the issuance of any order of the Commission which materially modifies the provisions of such service, either NG, the customer, or the Marketer shall have the option to terminate transportation service by giving written notice of termination to the other party at any time within thirty (30) days after the issuance of said order.

_____ _____
Customer Signature Title

_____ _____ _____
Print or Type Name Date Phone #

_____ _____
Contact in event of telecommunications issue : Print or Type Name Phone #

This section to be filled out by the Marketer

By signing below and pursuant to its separate Marketer Aggregation Pool Service Agreement, the Marketer (i) accepts the designation as the customer's marketer and (ii) agrees to pay all applicable Marketer charges in accordance with NG's tariff, including its Transportation Terms and Conditions

TRANSPORTATION TERMS AND CONDITIONS

Marketer	Marketer Signature	Title
Phone #	Print or Type Name	Date

TRANSPORTATION TERMS AND CONDITIONS

THE NARRAGANSETT ELECTRIC COMPANY
MARKETER AGGREGATION POOL SERVICE AGREEMENT

This Agreement ("Agreement") is entered into this _____ day of _____, 20__, by and between The Narragansett Electric Company, d/b/a National Grid, a subsidiary of National Grid USA with a principal place of business in the State of Rhode Island at 280 Melrose Street, Providence, Rhode Island (herein called "NG" or the "Company") and _____ (herein called "Marketer.")

WITNESSETH THAT:

WHEREAS, the Company's tariff, RIPUC NG-GAS No. 101, Section 6, Schedule C, provides for and establishes terms and conditions for a Marketer Aggregation Pool; and

WHEREAS; Marketer desires to establish an Aggregation Pool and desires Company to provide pool aggregation services pursuant to such Schedule C and to transport quantities of gas delivered by Marketer for use at the locations of customers belonging to the Aggregation Pool (hereafter called "Points of Delivery"); and

WHEREAS: Company, is willing to provide such service to Marketer.

NOW, THEREFORE, Company and Marketer agree that Company, subject to the Company's General Terms and Conditions, Transportation Terms and Conditions, limitations and provisions hereof, commencing _____ 1, 20__, will transport and deliver to customers of Marketer's Aggregation Pool such quantities of Marketer's gas delivered by Transporting Pipeline to Company's distribution facilities (hereafter called "Point of Receipt").

1.0 AGGREGATION POOL:

1.1 Marketer is establishing a single Aggregation Pool as indicated by an X:

Daily Metered _____
Non-daily Metered _____

1.2 Marketer hereby subscribes to Company's Marketer Aggregation Service pursuant to Item 5.00 of the Company's Transportation Terms and Conditions, Section 6, Schedule C.

1.3 Marketer represents and warrants that Marketer has met and will continue to meet the Marketer qualifications in Item 5.03 of Company's Transportation Terms and Conditions, Section 6, Schedule C.

1.4 Marketer agrees to provide to Company no later than 30 days before the above identified commencement date Transportation Service Applications for all end user customers in Marketer's

TRANSPORTATION TERMS AND CONDITIONS

Aggregation Pool identified in 1.1 above. Such list is to include: Customer Name; Billing Address; NG account #; and, name and telephone number of customer contact person.

1.5 Marketer agrees to notify Company in writing of any changes in the makeup of an Aggregation Pool as provided in the Company's Transportation Terms and Conditions.

1.6 Marketer represents and warrants that it has accepted the designation as the Marketer of each customer of the Aggregation Pool and agrees in each case to be bound by, perform, and pay all charges applicable to transportation service to the Customer's account in accordance with the provisions of the Company's tariff.

2.0 PIPELINE CAPACITY RELEASE:

2.1 Company agrees to provide to Marketer no later than 15 days before the above identified commencement date, the quantity of interstate pipeline capacity allocated for Marketer's FT-1 and FT-2 Aggregation Pool(s) broken down by individual customer.

2.2 Marketer agrees to accept assignment of such firm interstate pipeline capacity in accordance with the Company's Transportation Terms and Conditions, Schedule C, Item 1.07.

2.3 Company agrees to update the calculation of the quantity of interstate pipeline capacity annually based on customers' most recent historical usage in accordance with the Company's Transportation Terms and Conditions, Schedule C, Item 1.07.

3.0 PUBLIC REGULATION:

3.1 Company is a public utility subject to regulation by Rhode Island Public Utilities Commission ("Commission"). This Agreement is subject to any limitations, modifications or amendments ordered by the Commission, regardless of whether said order resulted from a petition, request or other solicitation directed to the Commission by a party to the Agreement. Compliance by Company with any order, rule, regulation or policy statement of the Commission, or of any other federal, state or local governmental authority, whether issued before or after the effective date of this Agreement, shall relieve Company of any liability for its failure to perform any of its obligations hereunder as a result of such compliance. In the event of the issuance of any order of the Commission which materially modifies the provisions of this Agreement, either Company or Marketer shall have the option to terminate this Agreement by giving written notice of termination to the other party at any time within thirty (30) days after the issuance of said order.

3.2 This Agreement shall be subject to Company's General Terms and Conditions and Transportation Terms and Conditions on file with the Commission to the extent those Terms and Conditions are not inconsistent with the provisions of this Agreement.

4.0 GOVERNING LAW:

TRANSPORTATION TERMS AND CONDITIONS

This Agreement is entered into and shall be construed in accordance with the laws of the State of Rhode Island and any actions hereunder shall be brought in the appropriate forum within the State of Rhode Island.

IN WITNESS WHEREOF, the parties hereto have signed and sealed this Agreement by their duly authorized officers:

By _____

Signature: _____

Name: _____

Title: _____

_____ Date: _____

Witness

By The Narragansett Electric Company

Signature: _____

Name: _____

Title: _____

_____ Date: _____

Witness

TRANSPORTATION TERMS AND CONDITIONS

THE NARRAGANSETT ELECTRIC COMPANY
STORAGE AND PEAKING RESOURCE AGREEMENT

This Agreement ("Agreement") is entered into this _____ day of _____, 20__, by and between the Narragansett Electric Company, d/b/a National Grid, a subsidiary of National Grid USA with a principal place of business in the State of Rhode Island at 280 Melrose Street, Providence, Rhode Island (herein called "NG" or the "Company") and _____ (herein called "Marketer.")

WITNESSETH THAT:

WHEREAS, Marketer seeks to obtain service respecting a quantity of the Company's contracted underground storage and peaking resources pursuant to the terms and conditions for FT-2 Transportation Service in the Company's tariff, RIPUC NG-GAS No. 101, Section 6, Schedule C; and

WHEREAS; Marketer desires that the Company transport quantities of gas delivered by Marketer for use at the locations of customers belonging to an FT-2 Aggregation Pool (hereafter called "Points of Delivery"); and

WHEREAS: Company, is willing to provide such storage and transportation service to Marketer.

NOW, THEREFORE, Company and Marketer agree that Company, subject to the Company's General Terms and Conditions, Transportation Terms and Conditions, limitations and provisions hereof, commencing _____ 1, 20__, will provide to Marketer storage and peaking services in association with Marketer account number _____ under the terms and conditions set forth below.

1.0 SCOPE OF AGREEMENT:

1.1 The Company will calculate the Maximum Storage Quantities for both Underground Storage and for Peaking services ("MSQ-U" and "MSQ-P" respectively) as well as the Maximum Daily Quantities for both Underground Storage and Peaking services ("MDQ-U" and "MDQ-P" respectively) in accordance with Item 3.02 in Section 6, Schedule C of the Company's tariff. Such calculated quantities can change during the term of the agreement to the extent that the makeup of the Marketer's FT-2 Aggregation Pool changes.

1.2 Marketer hereby agrees to utilize and manage such services and inventories attributed to its account in accordance with the Operational Parameters described in Item 3.02.3 of the Company's Transportation Terms and Conditions, Section 6, Schedule C and as on file with the Public Utilities Commission as part of the Company's annual Gas Cost Recovery filing.

TRANSPORTATION TERMS AND CONDITIONS

2.0 INVENTORY SERVICES:

2.1 All nominations for purchases from storage will take place at the Company's city gate.

2.2 Purchases of inventory service from the Company will be as stated in the Company's currently effective tariff.

2.3 Purchase of any storage inventory service from the Company will require payment via electronic transfer of funds within ten days of the invoice date.

2.4 Marketer acknowledges that it shall bear no ownership interest in any other storage or peaking assets or inventory of the Company.

3.0 SUCCESSORS AND ASSIGNS:

3.1 This Agreement shall be binding on the parties hereto and their respective successors and assigns. This Agreement may not be assigned by Marketer without the prior written consent of the Company.

4.0 PUBLIC REGULATION:

4.1 Company is a public utility subject to regulation by Rhode Island Public Utilities Commission ("Commission"). This Agreement is subject to any limitations, modifications or amendments ordered by the Commission, regardless of whether said order resulted from a petition, request or other solicitation directed to the Commission by a party to the Agreement. Compliance by Company with any order, rule, regulation or policy statement of the Commission, or of any other federal, state or local governmental authority, whether issued before or after the effective date of this Agreement, shall relieve Company of any liability for its failure to perform any of its obligations hereunder as a result of such compliance. In the event of the issuance of any order of the Commission which materially modifies the provisions of this Agreement, either Company or Marketer shall have the option to terminate this Agreement by giving written notice of termination to the other party at any time within thirty (30) days after the issuance of said order.

4.2 This Agreement shall be subject to Company's General Terms and Conditions and Transportation Terms and Conditions on file with the Commission, including provision thereof limiting the Company's liability, to the extent those Terms and Conditions are not inconsistent with the provisions of this Agreement. Upon request of the Marketer, Company shall provide the Marketer with a copy of Company's complete filed Tariff and Terms and Conditions.

5.0 GOVERNING LAW:

This Agreement is entered into and shall be construed in accordance with the laws of the State of Rhode Island and any actions hereunder shall be brought in the appropriate forum within the State of Rhode Island.

TRANSPORTATION TERMS AND CONDITIONS

IN WITNESS WHEREOF, the parties hereto have signed and sealed this Agreement by their duly authorized officers:

By _____

Signature: _____

Name: _____

Title: _____

Witness _____ Date: _____

By The Narragansett Electric Company

Signature: _____

Name: _____

Title: _____

Witness _____ Date: _____

NATURAL GAS VEHICLE SERVICE
RATE 70

This service has been eliminated as of May 7, 2012 in pursuant of Docket 4271 that was approved by the PUC.

GAS LAMPS
RATE 80

1.0 AVAILABILITY:

This service is available for gas lamps, without meters, to customers of record on July 1, 2002 throughout the Company's service territory and is not available to new commercial accounts.

2.0 CHARACTER OF SERVICE:

A continuous supply of gas of not less than 1,000 Btu per cubic foot.

3.0 RATES: On a monthly basis: $9.52 per lamp

4.0 GENERAL RULES AND REGULATIONS:

The Company's General Rules and Regulations, in Section 1 of RIPUC NG-GAS No. 101, as in effect from time-to-time and where not inconsistent with any specific provisions hereof, are a part of this Schedule.

5.0 RHODE ISLAND GROSS EARNINGS TAX:

The application of the above rates is subject to the Rhode Island Gross Earnings Tax provisions in Section 1, Schedule C.

6.0 LIHEAP ENHANCEMENT:

The application of the above rate is subject to the Low Income Home Energy Assistance Enhancement Plan (LIHEAP) provisions in Section 7, Schedule C.

OTHER MISCELLANEOUS CHARGES

OPTIONAL CREDIT CARD PAYMENT PROVISION

1.0 AVAILABILITY:

Customers of National Grid (National Grid or Company) have the option of paying their bills issued by National Grid through the use of a payment-processing agent (Third Party Vendor). Residential and non-residential customers, as determined by the Company's rate schedule designations, have the option to make payments by telephone or web page. The availability of this option will be subject to the Company's ability to arrange for such an option. This payment option is available to all of the Company's customers choosing to make payments to the Company through use of the Third Party Vendor-sponsored telephone or web page system. If there is a conflict between the PUC's Rules Governing the Acceptance of Credit Card Payments (the Rules) and this provision, the Rules shall govern.

2.0 PAYMENT TYPES:

The following payment methods shall be accepted under this provision:

1. Visa;
2. Mastercard;
3. American Express;
4. Discover;
5. Debit Cards issued by a financial institution which include a card association symbol such as Visa or MasterCard; and
6. Electronic Checks

3.0 FEES:

Customers choosing to make payments under this option will be assessed a fee directly by the Third Party Vendor for each payment the customer initiates. The fee to be charged by the Third Party Vendor is based on whether the customer making the payment is a residential customer or a non-residential customer and the number of payment transactions made. The customer must initiate each payment transaction. Initiating one payment transaction does not establish future payment transactions for a customer.

Residential Fees:

The residential fee per payment transaction, up to a maximum transaction amount of $600 is $2.25. The Third Party Vendor will assess a fee of $2.25 per transaction for any additional payment transactions up to $600 each.

OTHER MISCELLANEOUS CHARGES

OPTIONAL CREDIT CARD PAYMENT PROVISION

Non-Residential Fees:

The non-residential fee per payment transaction, up to a maximum transaction amount of $1,000, is $6.95. The Third Party Vendor will assess a fee of $6.95 per transaction for any additional payment transactions up to $1,000 each.

4.0 PAYMENT AMOUNT:

Customers who choose to make payments under this provision shall have the ability to make partial payments. Additionally, the Company shall not deny a customer's use of these payment options because the customer's account with the Company is past due.

5.0 COMPANY OBLIGATION:

The payment transaction shall occur between the customer and the Third Party Vendor. The Company shall provide information regarding the Third Party Vendor's payment systems to assist its customers who choose to make payments by telephone or web page. The Company shall assist its customers in the resolution of any disputes between customers and the Third Party Vendor involving the credits posted by the Company to customers' accounts as a result of the processing of customer payments under this provision. The Company has no obligation, however, to participate in any dispute involving matters strictly between the customer and the Third Party Vendor or the customer's bank or card issuer.

6.0 TERMS & CONDITIONS:

The Company's Terms & Conditions, as may be amended from time to time, where not inconsistent with any specific provisions hereof, are a part of this provision.

OTHER MISCELLANEOUS CHARGES

LOW INCOME HOME ENERGY ASSISTANCE PROGRAM ENHANCEMENT PLAN CHARGE

7.0 LOW INCOME HOME ENERGY ASSISTANCE ENHANCEMENT PLAN (LIHEAP) CHARGE:

In accordance with R.I.G.L. § 39-1-27.12, the Company shall bill monthly to all customers a Low Income Home Energy Assistance Enhancement Plan charge ("LIHEAP Charge") approved by the PUC, provided however that the annual charge shall not exceed $10 per customer, per year. For purposes of this section a "customer" is defined as any person taking service at a single point of gas delivery or gas meter.

The monthly rate for the LIHEAP Charge is $0.81 per customer and shall appear as a separate line item on a customer's bill.

7.1 LIHEAP Enhancement Fund:

The Company shall establish a LIHEAP Enhancement Plan fund that shall be used to account for the combined funds collected through the LIHEAP Charge from both gas and electric service customers. The Rhode Island Department of Human Services ("DHS") shall designate to the Company the qualifying customer accounts and the amounts to be credited from the LIHEAP Enhancement Plan fund. The cumulative amount of credits applied to customer bills will be limited to an amount no greater than the cumulative aggregate projected LIHEAP Charges billed through the end of the current calendar year. Once the aggregate credits applied to customer bills equals the aggregate projected LIHEAP Charges billed through the end of the current calendar year, including interest as defined below, the application of the LIHEAP Enhancement Plan credits would cease. Any difference in aggregate cumulative actual LIHEAP Charges billed and aggregate cumulative credits applied to customer bills, will accrue interest at the customer deposit interest rate.

The projected annual revenue in the LIHEAP Enhancement Plan fund collected through the gas and electric service LIHEAP Enhancement Plan charges shall not exceed seven million five hundred thousand dollars ($7,500,000) and shall not be less than six million five hundred thousand dollars ($6,500,000).

Beginning on September 1, 2016 and monthly thereafter between April 15 and September 30 of each year, the Company will set aside a minimum of 5 percent of the funds collected through the LIHEAP Enhancement Plan, to be allocated to provide assistance to customers seeking LIHEAP certification for the sole purpose of entering into the Arrearage Management Program ("AMP") as described in R.I.G.L. § 39-2-1(d)(2). This fund is designated for homeless families or individuals who are transitioning from a

OTHER MISCELLANEOUS CHARGES

LOW INCOME HOME ENERGY ASSISTANCE PROGRAM ENHANCEMENT PLAN CHARGE

shelter into housing who provide acceptable documentation to DHS. Remaining funds available after September 30 of each year will be eligible for use in the upcoming winter season.

7.2 LIHEAP Eligible Customer:

For purposes of receiving funds from the LIHEAP Enhancement fund in subpart 7.1 above, a qualifying LIHEAP eligible customer shall be a household with a combined gross income equal to or less than 60 percent of the state median household income as calculated by the U.S. Bureau of Census and as adjusted for family or group size by the U.S. Department of Health and Human Services regulation 45 CFR § 96.85 or its successor regulation.

OTHER MISCELLANEOUS CHARGES

PAPERLESS BILL CREDIT

8.0 PAPERLESS BILL CREDIT:

Customers receiving bills may elect to receive their bill electronically. Customers electing to receive their bills electronically will receive a paperless billing credit of $0.34 each month per account.

OTHER MISCELLANEOUS CHARGES

ARREARAGE MANAGEMENT PROGRAM PROVISION

9.0 ARREARAGE MANAGEMENT PROGRAM:

In accordance with R.I.G.L. § 39-2-1(d)(2), commencing on September 1, 2016, the Company shall implement an Arrearage Management Program ("AMP") pursuant to this tariff provision.

I. PROGRAM ELIGIBILITY

In order to be considered eligible for enrollment in the AMP, a customer who has been terminated from gas service or is recognized, pursuant to a rule or decision by the Division of Public Utilities and Carriers, as being scheduled for actual shut-off of service on a specific date, shall meet all of the following criteria:

- The applicant must be the customer of record, although the customer of record may authorize someone else to communicate with the Company to help enroll the customer of record in the AMP;
- The applicant must be eligible for the federal low-income home energy assistance program ("LIHEAP");
- The account must be receiving retail delivery service on the Company's Residential Low-Income Rate 11;
- The customer's account must have a minimum balance of $300.00 that is more than 60 days past due;
- If service to the account has been terminated, the customer must make an initial payment of 25% of the total unpaid balance (current and past due), unless otherwise directed by the Public Utilities Commission ("PUC") as a result of an emergency regulation;
- The customer must agree to a payment plan, as further described in Section III;
- The customer must agree to remain current with payments. "Remaining current" means that the customer:
    1) misses no more than two (2) payments in the 12-month term of the payment plan; and
    2) pays the amount due under the payment plan in full by the conclusion of the payment plan's 12-month term;
- The customer must agree to participate in the Company's Energy Efficiency programs; and

OTHER MISCELLANEOUS CHARGES

ARREARAGE MANAGEMENT PROGRAM PROVISION

- The customer must apply for other available energy assistance programs, such as fuel assistance and weatherization.

II. ENROLLMENT

To participate, the customer must affirmatively apply to participate in the AMP.

The Company shall administer the AMP enrollment process in compliance with the eligibility qualifications outlined in Section I. By applying to participate in the AMP, the customer agrees to comply with the terms of the AMP, including the customer's specific payment plan. After a customer has applied to the AMP, the Company shall determine whether the customer has met all of the AMP eligibility criteria set forth in Section I, based on the Company's records. The Company will coordinate with the Community Action Program ("CAP") agencies to validate customer eligibility when appropriate.

III. PAYMENT PLAN

AMP participants shall enroll in a 12-month payment plan, paid in equal monthly installments, that will cover new charges based upon their current estimated annual usage ("Payment Plan").

The current component of the Payment Plan shall be based on the customer's average monthly usage for the previous year less the customer's actual or anticipated fuel assistance commitments, and shall be converted to a fixed monthly payment.

IV. ARREARS FORGIVENESS

AMP participants will be eligible for forgiveness of their account balance that is past due at the time of the first bill under their Payment Plan, up to an annual maximum of $1,500. With each payment under the Payment Plan, a portion of the participant's outstanding past due account balance as described above is forgiven in an amount equal to the total past due account balance or $1,500, whichever is less, divided by 12; provided, however, that the annual arrearage forgiveness amount shall not exceed $1,500.

If an AMP participant's past due account balance at the time their Payment Plan takes effect exceeds $1,500, the AMP participant may request an extension of the Payment Plan beyond the initial 12-month term to establish a new Payment Plan to accommodate the additional account balance in excess of $1,500. To be eligible for an extension, the AMP participant must be current with their Payment Plan at the conclusion of the initial 12-month term. Such AMP

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ARREARAGE MANAGEMENT PROGRAM PROVISION

participant's Payment Plan will be extended upon the AMP participant's timely request for an extension.

V. PAYMENT PLAN REVIEW

Customers applying to participate in the AMP will be advised that the amount of their required monthly payment under their Payment Plan may change over the lifetime of the Payment Plan.

The Company shall review the Payment Plans of active AMP participants every three months and may adjust the installment payments based on the following:

- A fuel assistance commitment is made subsequent to enrollment;
- There is a change in fuel assistance, such as a change in the amount, from what was understood at enrollment;
- The customer moves to a new address with a different average monthly usage for the previous year;
- Actual usage patterns differ from what was estimated as annual usage at enrollment; or
- There is a significant change in the Company's rates from what was anticipated at enrollment.

VI. DEFAULT

The Company shall consider the AMP participant's billing account in default if either of the following occurs:

- The AMP participant misses more than two (2) payments in the 12-month Payment Plan term; or
- If the amount due under the Payment Plan is not paid in full by the conclusion of the 12-month Payment Plan term.

Upon default, the Company shall terminate an AMP participant from the AMP and the customer's unpaid balance will be due and payable in full. However, any arrearage forgiven under the AMP prior to termination of participation in the AMP will remain forgiven.

Customers shall have the option to opt out of continued participation in the AMP at any time, with the understanding that any unpaid balance will be due and payable in full. Customers who voluntarily opt out of the AMP will receive the same treatment as those customers who

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default on their Payment Plans under the AMP, as set forth in Section X (Subsequent Eligibility).

VII. TERMINATION

In addition to termination upon default, a customer's participation in the AMP shall terminate if either of the following occurs:

- The AMP participant moves outside of the Company's service territory; or
- The AMP participant moves from one service location to another service location.

If a customer is terminated from AMP participation, the customer's unpaid balance will be due and payable in full. However, any arrearage forgiven under the AMP prior to termination of participation in the AMP will remain forgiven.

VIII. COLLECTION ACTIVITY

AMP participants shall not be subject to the Company's normal collections activities while actively participating in the AMP. The Company shall resume normal collections activities if an AMP participant defaults while participating in the AMP or terminates the AMP.

IX. AMP BILLING AND ACTIVE PLAN NOTICING

The Company shall remove the amount of an AMP participant's arrears balance up to $1,500 from the "current amount due" field on certain views of AMP participant accounts in the Company's billing system. However, the arrears balance up to $1,500 shall remain on the customer's bill.

Customers who are enrolled in the AMP will receive an AMP "Enrollment Letter" outlining the terms and conditions of their participation in the AMP.

Customers in danger of defaulting from the AMP will receive a default letter advising them of the need to make all required payments or risk default, termination from the AMP, and a return to the Company's normal collections activities.

X. SUBSEQUENT ELIGIBILITY

A customer is eligible for subsequent enrollment in the AMP provided two years have passed since either (a) the date of the customer's successful completion of the AMP, or (b) the date on which the customer's participation in the AMP was terminated as a result of default or because the customer voluntarily opted out of the AMP, so long as a CAP agency has provided a recommendation to allow eligibility notwithstanding the customer's default or voluntary opt out

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the AMP. The Company shall review requests for re-enrollment on a case-by-case basis to determine that the foregoing criteria are met.

XI. Reporting Metrics

The Company shall report monthly and annually the metrics below to allow for the evaluation of the effectiveness of the AMP. The monthly and annual reports shall be submitted to the PUC in Docket No. 4290.

- Number of customers enrolled in the program at the end of the reporting period;
- Number of customers added to the program during the reporting period;
- Number of customers terminated from the program (by choice or default) during the reporting period;
- Number of customers who successfully completed the program during the reporting period;
- Total customer payments during the reporting period;
- Total amount to be forgiven for all participating customers at the end of the reporting period;
- Average amount to be forgiven for all participating customers at the end of the reporting period;
- Total amount to be paid under a payment plan for all participating customers at the end of the reporting period;
- Average arrears balance not yet forgiven of all participating customers at the end of the reporting period;
- Average arrears balance as a percentage of the total balance due for all participating customers at the end of the reporting period;
- Total amount of arrears outstanding for all participants at the end of the reporting period;
- Total amount of forgiveness credits (allowances) given during the reporting period;
- Number of forgiveness credits (allowances) given during the reporting period;
- Average amount of forgiveness credits (allowances) given during the reporting period;
- Number of participants receiving LIHEAP at the end of the reporting period;
- Percentage of participants receiving LIHEAP at the end of the reporting period; and
- Total LIHEAP payments received during the reporting period.

The Company shall also provide a schedule with the number of customers enrolled in the AMP, by month, together with the number of defaults and program terminations.

XII. Cost Recovery

The prices for Delivery Charges contained in all the rates of the Company are subject to adjustment to reflect an Arrearage Management Adjustment Factor ("AMAF") designed to

OTHER MISCELLANEOUS CHARGES

ARREARAGE MANAGEMENT PROGRAM PROVISION

recover incremental costs incurred associated with the AMP. Incremental costs include the amount of arrearage forgiven. The recovery of the arrearage amounts forgiven by the Company through the AMP is dependent on the following criteria:

i. If a customer does not satisfy the conditions of R.I.G.L. § 39-2-1(d)(2), the amount of arrearage forgiven by the Company to that point shall remain forgiven and be written off by the Company. However, the amount of arrearage forgiven by the Company is recoverable in full.

ii. If a customer does satisfy the conditions of R.I.G.L. § 39-2-1(d)(2), all arrearage amounts forgiven will be treated as bad debt. At the end of each calendar year, the Company will perform a test to determine if the amount of bad debt for the year exceeds the adjusted allowable bad debt from the Company's most recent general rate case. This adjusted allowable bad debt will be calculated using the distribution uncollectible amount determined in the last general rate case, updated for the current calendar year Gas Cost Recovery, Distribution Adjustment Clause ("DAC"), commodity, and energy efficiency-related bad debt. Should the actual amount of bad debt incurred by the Company for the year exceed this adjusted allowable bad debt amount, the Company will be entitled to recover, in the following year, all amounts of arrearage forgiven under R.I. Gen. Laws § 39-2-1(d)(2)(xiv) in the prior year in excess of the allowable bad debt. If, however, the amount of the arrearage forgiven under § 39-2-1(d)(2)(xiv) in excess of the adjusted allowable bad debt for a given year is not significant enough to calculate an annual reconciling factor for that year, the Company may reflect such amount in its next Revenue Decoupling Mechanism reconciliation filing.

The AMAF shall be a uniform per therm factor based on the estimated therms to be delivered by the Company to its gas customers over a 12-month period. For billing purposes, the AMAF will be included with the DAC charge on customers' bills. Should any balance remain outstanding subsequent to the recovery of costs associated with the AMP as described above, the Company shall reflect this balance as an adjustment in the subsequent period.

XIII. ADJUSTMENT TO RATES

Adjustments to rates pursuant to the Arrears Management Program Provision are subject to review and approval by the PUC. Modifications to the factor contained in this Provision shall be made in accordance with a notice filed with the PUC pursuant to R.I.G.L. § 39-3-11(a) setting forth the amount(s) of the revised factor(s) and the amount(s) of the increase(s) or decrease(s). The notice shall further specify the effective date of such charges.

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 6/5/2017 4:57:13 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
Subject: FW: Newport Navy CHP May 8th meeting notes and action items
Attachments: rigas_firm_rates.pdf

One more

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
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280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Afonso, Jacques R.
Sent: Monday, June 05, 2017 11:43 AM
To: Dunham, Jeffrey B.
Subject: RE: Newport Navy CHP May 8th meeting notes and action items

Firm gas rates:
https://www.nationalgridus.com/media/pdfs/billing-payments/rigas_firm_rates.pdf

---

From: Afonso, Jacques R.
Sent: Monday, June 05, 2017 11:38 AM
To: Dunham, Jeffrey B.
Subject: RE: Newport Navy CHP May 8th meeting notes and action items

Hi Jeff,
I haven't heard back (from Billing Ops Cust Rate & Tax Model) regarding the historical curtailment penalties for the Navy Account. This is the group that has typically been involved with the curtailment penalty communication.

Here is the other information…

https://www9.nationalgridus.com/narragansett/business/rates/rates.asp
https://www.nationalgridus.com/RI-Home/Bills-Meters-and-Rates/

Gas Rates (attached pdf)
https://www.nationalgridus.com/media/pdfs/billing-payments/rigas_tariff.pdf

Electric G62 Rate (attached pdf)
https://www9.nationalgridus.com/non_html/G62_RIPUC_2141.pdf

Regards,
Jacques

Jacques R Afonso
Manager, Community & Customer Management, RI
nationalgrid
280 Melrose Street
Providence, RI 02907
Office:401-784-4320
Mobile:401-447-5789
E-mail:Jacques.Afonso@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Tuesday, May 16, 2017 10:13 AM
To: Jim Falsetti
Cc: Paul Curran; naveen kapur; Ferris, Gerald Jr; Dion, Thomas; Afonso, Jacques R.; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paine, Fred
Subject: Newport Navy CHP May 8th meeting notes and action items

Discussion

- Firm gas service proposed for the CHP
- Existing non-firm gas service to stay in place
- Cost associated with the new gas service will be determined once the gas loads and hours of operation are confirmed
- CHP will be privately owned and the gas account will not be in the Navy's name
- Jim and Jeff will be the point of contact for all correspondence
- CHP will not operate during the summer months there is no thermal load

Action items
Jaques Afonso to provide Jeff historical curtailment penalty data for Navy Account
Jaques Afonso to provide Jeff a copy of the firm gas rates and also the electric G62 rate
Jeff Dunham to determine if the 5% energy efficiency reduction has been accomplished
Jim Falsetti to provide Jeff load profile by month and hours of operation
Jim Falsetti will send out an outlook invite to all parties for a standing meeting every other Monday at 1, next conference call should be on Monday May 22nd (invite still needs to be sent out to folks)

Folks if I missed anything feel free to comment

Jeff

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LEED Accredited Professional (AP)
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315-460-8954 Fax

From: Jim Falsetti [mailto:jim.falsetti@bgenergy.com]
Sent: Tuesday, April 25, 2017 2:36 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.
Subject: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

Jed, we are still going forward. I think our last communication was on natural gas availability, and determining the gas situation was necessary before we went on to next steps. I believe we sent the consumption information. Do you require more information in order to provide an update on the gas availability at the site? Best

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Tuesday, April 25, 2017 2:22 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com>
Subject: Newport Navy CHP/Gas Consumption for the Taurus 70

Hey folks,

I have not heard from you guys in a while. Where does this project sit? Are we moving forward?

Have you narrowed down the size? Can you provide the Energy Efficiency calculations to us?

Let us know the timeline for next steps if possible.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
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Providence RI 02907
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed – sorry for the delay – attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navy's current steam boiler consumption. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

An estimate of Taurus 70 performance is shown below. I would think for the gas company they are most concerned with maximum gas requirements during the winter when their system is the most stressed. The maximum capacity of the turbine at 0 degrees OAT is shown below (data from Solar Turbines) and the fuel consumption on a lower heating value basis is ~84.21 mmbtu/hr.

As far as the duct burner, we were looking at duct firing ad additional 40 klb/hr of steam with the Taurus 70. This equates to an additional ~ 40-41 mmbtu/hr fuel input on an LHV basis.

Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Jim, please make sure that NGRID does not add the existing boiler gas consumption to the CHP gas consumption. This is because when the turbine is operating, in most instances, the boilers will not be required to operate. The Navy may however put one, or more, of their boilers in hot standy, which will increase the gas consumption slightly

Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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Rates for Effect 05/01/17 Rates do not include RIGET			Delivery Charges: Base Rates: Customer Charge Per Customer per month	Base Rates: Demand Per Therm	Base Rates: Break Per Therm	Base Rates: Distribution Charges Head Per Therm	Base Rates: Distribution Charges Tail Per Therm	Distribution Adjustment Charge (DAC) Per Therm	Energy Efficiency Programs Per Therm	Gas Charges: Gas Cost Recovery (GCR) Per Therm	LIHEAP Enhancement Charge Per Customer per month
Residential											
Residential Non-Heating	**Rate 10**		$13.00	N/A	N/A	$0.4386	N/A	$0.2443	$0.0888	$0.4525	$0.81
LI- Residential Non-Heating	**Rate 11**		$11.70	N/A	N/A	$0.3947	N/A	$0.2443	$0.0888	$0.4525	$0.81
Residential Heating	**Rate 12**	Peak	$13.00	N/A	125	$0.4672	$0.3010	$0.1459	$0.0888	$0.4766	$0.81
		Off-Peak	$13.00	N/A	30	$0.4672	$0.3010	$0.1459	$0.0888	$0.4766	$0.81
LI- Residential Heating	**Rate 13**	Peak	$11.70	N/A	125	$0.4205	$0.2709	$0.1459	$0.0888	$0.4766	$0.81
		Off-Peak	$11.70	N/A	30	$0.4205	$0.2709	$0.1459	$0.0888	$0.4766	$0.81
Commercial/Industrial											
Small (< 5,000/yr)	**Rate 21**	Peak	$22.00	N/A	135	$0.5431	$0.2242	$0.1639	$0.0726	$0.4766	$0.81
		Off-Peak	$22.00	N/A	20	$0.5431	$0.2242	$0.1639	$0.0726	$0.4766	$0.81
Medium (5,001 to 35,000/yr)	**Rate 22**	Sales	$70.00	$1.3000	N/A	$0.1865	N/A	$0.1010	$0.0726	$0.4766	$0.81
		Transportation	$70.00	$1.3000	N/A	$0.1865	N/A	$0.1010	$0.0726	N/A	$0.81
Large Low Load (35,001 to 149,999/yr)	**Rate 33**	Sales	$175.00	$1.3000	N/A	$0.1727	N/A	$0.1067	$0.0726	$0.4766	$0.81
		Transportation	$175.00	$1.3000	N/A	$0.1727	N/A	$0.1067	$0.0726	N/A	$0.81
Large High Load (35,001 to 149,999/yr)	**Rate 23**	Sales	$175.00	$1.8000	N/A	$0.1007	N/A	$0.0984	$0.0726	$0.4525	$0.81
		Transportation	$175.00	$1.8000	N/A	$0.1007	N/A	$0.0984	$0.0726	N/A	$0.81
Extra Large Low Load (150,000+ per yr)	**Rate 34**	Sales	$425.00	$1.3000	N/A	$0.0328	N/A	$0.0241	$0.0726	$0.4766	$0.81
		Transportation	$425.00	$1.3000	N/A	$0.0328	N/A	$0.0241	$0.0726	N/A	$0.81
Extra Large High Load (150,000+ per yr)	**Rate 24**	Sales	$425.00	$1.8000	N/A	$0.0256	N/A	$0.0208	$0.0726	$0.4525	$0.81
		Transportation	$425.00	$1.8000	N/A	$0.0256	N/A	$0.0208	$0.0726	N/A	$0.81
Other Rates											
Gas Lamps	**Rate 80**		Flat rate of $9.52 per lamp								$0.81

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Gas Rates – Rhode Island

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Notes:

- Rates do not include RI Gross Earnings Tax (GET); GET will be billed as a separate line item.
- Peak season is November 1 through April 30. Off-Peak season is May 1 through October 31.
- All rates are listed in Therms. Usage is measured in Ccf and billed in Therms; a system weighted Btu factor will be applied to all meter reads and will change seasonally. **Effective May 1, 2017, the Btu conversion factor is 1.028. (Ccf x 1.028 = equivalent therm)**.
- The Distribution Adjustment Charge (DAC) will change on November 1 and April 1 to reflect changes in its components.
- The GCR (Gas Cost) will be updated from time to time to reflect changes in gas costs.

Summary of Transportation Marketer Charges

Transportation – Marketer Charges			
Paperless Bill Credit		$0.34	Per service bill per month
Weighted Average System Capacity Charge		$0.3766	Per Dth of capacity released to Marketers on behalf of Customers per day
FT-2 Demand Rate		$8.0484	Per MADQ Dekatherm
Storage Inventory(FT-2)	Underground	Varies Monthly	Per Dth of storage inventory sold to Marketers
	Peaking	Varies Monthly	Per Dth of peaking inventory sold to Marketers
Fuel Allowance (Line Loss)		3.36%	City-gate delivery gross-up to account for distribution losses

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Message

From: Arangio, Elizabeth C. (Marketing) [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ELIZABETH.ARANGIO]
Sent: 6/6/2017 1:36:28 PM
To: Poe Jr, Theodore E. [theodore.poejr@nationalgrid.com]
CC: Culliford, Nancy G. (Marketing) [nancy.culliford@nationalgrid.com]
Subject: Re: Help needed: SoRI Capacity Analysis

Ted - on the way in from the Forum but we would have NO idea. RI sales should know. Liz

Sent from my iPhone

On Jun 6, 2017, at 8:32 AM, Poe Jr, Theodore E. <Theodore.PoeJr@nationalgrid.com> wrote:

> In trying to complete the RI forecast, I need to add in a number of projects identified by Gas Sales.
>
> In speaking with Ann Leary, she pointed me to you as authoritative in telling me if they would be Customer Choice or capacity-exempt (was that a bus she just pushed you in front of?).
>
> While I could put smaller projects in as Sales or Customer Choice (we'd plan for the pipeline capacity any which way), I have four projects I need help with:
>
> [redacted]
>
> - <!--[if !supportLists]--><!--[endif]-->Naval Station Newport CHP at [redacted]
>
> Any guidance would help.
>
> As an aside, the SCC forecast absent these projects is looking like [redacted] for the upcoming winter (just a hair lower than we called 2017/18 last year) growing about 2 MDth per year.
>
> Thank you.
>
> -ted

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 6/12/2017 3:26:40 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Dion, Thomas [thomas.dion@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

Jim
Please comment on Jed's e mail below
thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Monday, June 12, 2017 11:25 AM
To: Dunham, Jeffrey B.; Dion, Thomas
Cc: Paine, Fred
Subject: RE: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

So this looks like they have load in the summer? According to their verbiage below they are shutting down in the summer? Where is the increased load in the summer months?

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Monday, June 12, 2017 11:22 AM
To: Dion, Thomas; Ferris, Gerald Jr
Cc: Paine, Fred
Subject: FW: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

fyi

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid

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From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Monday, June 12, 2017 11:21 AM
To: Dunham, Jeffrey B.
Cc: naveen kapur; Paul Curran; Greg Hester
Subject: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

Jeff,

Apologies for the delay. Attached is the expected gas load by month, assuming we have a steam load of 60k-lbs/hr. Although our planned annual operating hours are in the range of 5060-5700 hrs., the attached consumption is calculated based on the Taurus 70 always running when available. We would shut down in the summer months.

We will provide stop and start dates under separate cover.

Please give me a call for additional discussions – I don't think we need all 17 meeting attendees to attend our information gathering exercises. Once we have that sorted out, I'll be happy to send around with an updated meeting notice.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Tuesday, May 16, 2017 10:13 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Dion, Thomas <Thomas.Dion@nationalgrid.com>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport <daniel.l.sullivan3@navy.mil>; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport <john.reichert@navy.mil>; Pascual, Beth A CIV NAVFAC LANT, PW64 <beth.pascual@navy.mil>; Breckner, John K CIV NAVFAC MIDLANT, PW <john.breckner@navy.mil>; Paine, Fred <Fred.Paine@nationalgrid.com>
Subject: Newport Navy CHP May 8th meeting notes and action items

Discussion

- Firm gas service proposed for the CHP
- Existing non-firm gas service to stay in place
- Cost associated with the new gas service will be determined once the gas loads and hours of operation are confirmed
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401-527-4055 Cell
315-460-8954 Fax

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Sent: Tuesday, April 25, 2017 2:36 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.
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Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
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Sent: 6/26/2017 5:35:01 PM
To: Ferris, Gerald Jr [gerald.ferrise@nationalgrid.com]
Subject: FW: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

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From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Monday, June 12, 2017 11:40 AM
To: Dunham, Jeffrey B.
Cc: Dion, Thomas; Ferris, Gerald Jr
Subject: RE: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

Assume we are offline from May 30 until October 1. The excel sheet was calculated as if we were on all the time. So you can just ignore June, July, august and September.

Does that help?

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From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Monday, June 12, 2017 11:27 AM
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Cc: Dion, Thomas <Thomas.Dion@nationalgrid.com>; Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>
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Please comment on Jed's e mail below
thanks

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Sent: Monday, June 12, 2017 11:25 AM
To: Dunham, Jeffrey B.; Dion, Thomas
Cc: Paine, Fred
Subject: RE: EXT || RE: Newport Navy CHP May 8th meeting notes and action items

So this looks like they have load in the summer? According to their verbiage below they are shutting down in the summer? Where is the increased load in the summer months?

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fyi

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Natural Gas Impact of Combined Heat and Power Project at Naval Station Newport

Solar Mercury 50 Option

	Pre Combined Heat and Power Installation	Post Combined Heat
Month	Estimated Existing Natural Gas Usage at 7CC Boiler Plant (Therms)	Estimated Gas Turbine and Duct Burner Gas Usage (Therms)
January	411,655	575,179
February	424,988	593,705
March	377,109	582,049
April	241,303	412,779
May	36,805	342,342
June	0	318,028
July	0	174,898
August	0	319,258
September	0	313,590
October	84,228	334,725
November	225,583	430,555
December	254,052	465,446
Total	**2,055,724**	**4,862,554**

Notes: 1) Boiler gas usage post combined heat and power does not include gas usage to fire boilers to ke
condition if steam mud drum heaters are not used. This will be vetted during the design phase of the pro
2) This model assume 8273 hours of run time for the system

Solar Taurus 70 Option

	Pre Combined Heat and Power Installation	Post Combined Heat
Month	Estimated Existing Natural Gas Usage at 7CC Boiler Plant (Therms)	Estimated Gas Turbine and Duct Burner Gas Usage (Therms)
January	411,655	722,991
February	424,988	749,967
March	377,109	734,505
April	241,303	580,760
May	36,805	621,041
June	0	590,477
July	0	325,287
August	0	593,888
September	0	582,740

October	84,228	584,686
November	225,583	616,176
December	254,052	644,155
Total	**2,055,724**	**7,346,673**

Notes: 1) Boiler gas usage post combined heat and power does not include gas usage to fire boilers to ke
2) This model assume 8273 hours of run time for the system

and Power Installation
Estimated Natural Gas Usage for Boilers at 7CC Boiler Plant (Therms)
29,872
16,395
3,199
20,372
0
0
0
0
0
0
0
37
69,875

ep them in stand-by
ject

and Power Installation
Estimated Natural Gas Usage for Boilers at 7CC Boiler Plant (Therms)
24,004
21
137
20,238
0
0
0
0
0

0
0
0
44,401

ep them in stand-by

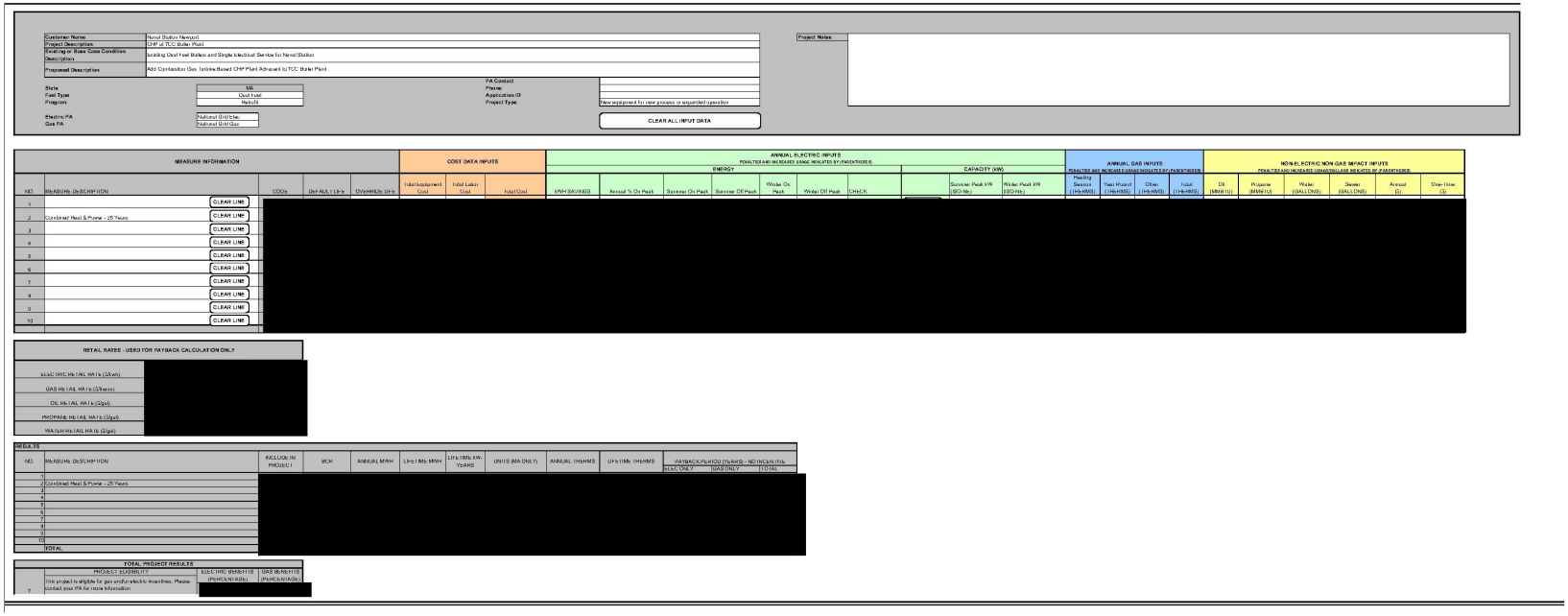
Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 7/7/2017 3:38:42 PM
To: Ferris, Gerald Jr [gerald.ferrise@nationalgrid.com]
CC: Jim Falsetti [jim.falsetti@bqenergy.com]
Subject: FW: EXT || Emailing - Naval Station Newport BCR Tool Example Taurus Low Runtime.pdf
Attachments: Naval Station Newport BCR Tool Example Taurus Low Runtime.pdf

Jed
Jim has passed the following attachment on to me
Any comments?
Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, July 06, 2017 4:50 PM
To: Dunham, Jeffrey B.
Subject: EXT || Emailing - Naval Station Newport BCR Tool Example Taurus Low Runtime.pdf



Customer Name	Naval Station Newport
Project Description	CHP at TCC Boiler Plant
Existing or Base Case Condition Description	Existing Dual Fuel Boilers and Single Electrical Service for Naval Station
Proposed Description	Add Combustion Gas Turbine-Based CHP Plant Advacent to TCC Boiler Plant.

State	RI
Fuel Type	Dual Fuel
Program	Retrofit
Electric PA	National Grid Elec
Gas PA	National Grid Gas
PA Contact	
Phone	
Application ID	
Project Type	New equipment for new process or expanded operation

CLEAR ALL INPUT DATA

Project Notes

MEASURE INFORMATION					COST DATA INPUTS			ANNUAL ELECTRIC INPUTS (PENALTIES AND INCREASED USAGE INDICATED BY PARENTHESES)									ANNUAL GAS INPUTS (PENALTIES AND INCREASED USAGE INDICATED BY PARENTHESES)				NON-EL ECTRIC NON-GAS IMPACT INPUTS (PENALTIES AND INCREASED UNDESIRABLE IMPACTS BY PARENTHESES)					
								ENERGY							CAPACITY (kW)												
NO.	MEASURE DESCRIPTION	CODE	EUL	RUL	Incremental Cost	Install Labor Cost	Total Cost	kWh SAVINGS	Annual % On Peak	Summer On Peak	Summer Off Peak	Winter On Peak	Winter Off Peak	CHECK	Summer Peak kW (SO Nb)	Winter Peak kW (SO Nb)	Heating Season (Hrs-MMS)	Peak Hours (Hrs-MMS)	Other (Hrs-MMS)	Total (Hrs-MMS)	Oil (MMBTU)	Propane (MMBTU)	Water (GALLONS)	Sewer (GALLONS)	Annual ($)	One-time ($)
1		CLEAR LINE																								
2	Combined Heat & Power - 25 Years	CLEAR LINE																								
3		CLEAR LINE																								
4		CLEAR LINE																								
5		CLEAR LINE																								
6		CLEAR LINE																								
7		CLEAR LINE																								
8		CLEAR LINE																								
9		CLEAR LINE																								
10		CLEAR LINE																								

RETAIL RATES - USED FOR PAYBACK CALCULATION ONLY	
ELECTRIC RETAIL RATE ($/kWh)	
GAS RETAIL RATE ($/therm)	
OIL RETAIL RATE ($/gal)	
PROPANE RETAIL RATE ($/gal)	
WATER/SEWAGE RETAIL RATE ($/gal)	

RESULTS												
											PAYBACK (YEARS) - NO INCENTIVE	
NO.	MEASURE DESCRIPTION	INCLUDE IN PROJECT	IECK	ANNUAL MMH	Lifetime MMH	Lifetime kW-Years	UNITS (MA ONLY)	ANNUAL MMBTU	Lifetime MMBTU	ELEC ONLY	GAS ONLY	TOTAL
1												
2	Combined Heat & Power - 25 Years											
3												
4												
5												
6												
7												
8												
9												
10												
	TOTAL											

TOTAL PROJECT RESULTS			
	PROJECT ELIGIBILITY	ELECTRIC BENEFITS (PENDS/NIAGRA)	GAS BENEFITS (PENDS/NIAGRA)
Y	This project is eligible for gas and/or electric incentives. Please contact your PA for more information		

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 7/10/2017 7:35:11 PM
To: Ferris, Gerald Jr [gerald.ferrise@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]
Subject: Navy CHP
Attachments: Scanned from a Xerox Multifunction Printer.pdf

Just an FYI the Navy has meet the 5% energy reduction on usage from energy efficiency on both gas and electric

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Jeffrey.Dunham@nationalgrid.com [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Monday, July 10, 2017 2:52 PM
To: Dunham, Jeffrey B.
Subject: Scanned from a Xerox Multifunction Printer

Please open the attached document. It was scanned and sent to you using a Xerox Multifunction Printer.

Attachment File Type: pdf, Multi-Page

Multifunction Printer Location: SERVICE COMPANY INC , PROVIDENCE, RI
Device Name: XRXNGUS128MFD15

For more information on Xerox products and solutions, please visit http://www.xerox.com

Annual usage [redacted]
5%

...p ...	Program Year	Program	Sub-Program	Status	Utility	Annual Gross Therms	Annual Net Therms	Incentive
46 ...679	2014	Large Commercial Retrofit	C & I Gas Custom	Payment Completed	Gas	[redacted]		
37 ...654	2013	Large Commercial Retrofit	C & I Gas Custom	Payment Completed	Gas			
29 ...995	2013	Large Commercial New Construction	C & I Gas Custom	Payment Completed	Gas			
35 ...480	2013	Large Commercial Retrofit	Steam Initiative	Payment Completed	Gas			

[redacted]

nationalgrid Demand Side Management

- Home
- DSM Delivery
- Program Management
- Evaluation
- Tools
- Search

[redacted]

View Customer Applications Premise No:- 504043500 - U S NAVY NAVAL STATION

Account Header | History | Usage | Applications |

Total Results Found = 142 (Display starts at: 1)

[redacted]

Application No.	State	Year	Program	Subprogram	Customer Facility Name	Status	Type	
~~6902729~~	~~RI~~	~~2016~~	~~EI~~	~~LIGHT~~	~~Naval War College Parking Garage~~	~~Cancelled~~	~~Electric~~	View
5962764	RI	2013	EI	CUSTA	NUWC UESC Project Siemens CONTROLS UPGRADE TC3	Closed	Electric	View
4567109	RI	2014	EI	CUSTA	NUWC UESC Project Siemens HVAC UPGRADES - TC4B	Closed	Electric	View
5768968	RI	2015	D2	LIGHT	US Navy Newport (LED Troffer)	Closed	Electric	View
4765203	RI	2013	EI	CUSTA	NUWC UESC Project Siemens MOTOR & DRIVES TC8	Closed	Electric	View
3953288	RI	2014	EI	CUSTA	NUWC UESC - BUILDING ENVELOPE -TC6	Closed	Electric	View
2845919	RI	2013	EI	CUSTA	NUWC UESC Project Siemens CONTROLS UPGRADE TC3	Closed	Electric	View
3829351	RI	2014	EI	LIGHT	Navy LED Lighting Marina	Closed	Electric	View
4765280	RI	2015	EI	LIGHT	Navy NAVFAC Mid Atlantic Bldg 1255	Closed	Electric	View
4765273	RI	2015	EI	LIGHT	Navy NAVFAC Mid Atlantic ROADWAY lighting	Closed	Electric	View
4765272	RI	2015	EI	LIGHT	Navy NAVFAC Mid Atlantic Bldg 1901	Closed	Electric	View
4765271	RI	2015	EI	LIGHT	Navy NAVFAC Mid Atlantic Bldg 95	Closed	Electric	View
4765202	RI	2013	EI	CUSTA	NUWC UESC Project Siemens LIGHTING TC-5	Closed	Electric	View
4765210	RI	2013	EI	CUSTA	NUWC UESC Project Siemens HVAC UPGRADES - TC4A	Closed	Electric	View
4765801	RI	2015	D2	LIGHT	Navy NAVFAC Mid Atlantic Upstream Portion	Closed	Electric	View
2841166	RI	2013	EI	CUSTA	[illegible]	Closed	Electric	View

					LIGHTING TC-5			
4769758	RI	2015	D2	LIGHT	Navy NAVEAC Upstream #1225, #95, #1901	Cancelled	Electric	View
2845920	RI	2013	EI	CUSTA	NUWC UESC Project Siemens HVAC UPGRADES - TC4A	Closed	Electric	View
2845921	RI	2013	EI	CUSTA	NUWC UESC Project Siemens MOTOR & DRIVES TC8	Closed	Electric	View
2751586	RI	2013	D2	CUSTA	NUWC P068 Sensor facility Office Perf Lighting	Cancelled	Electric	View

[redacted]

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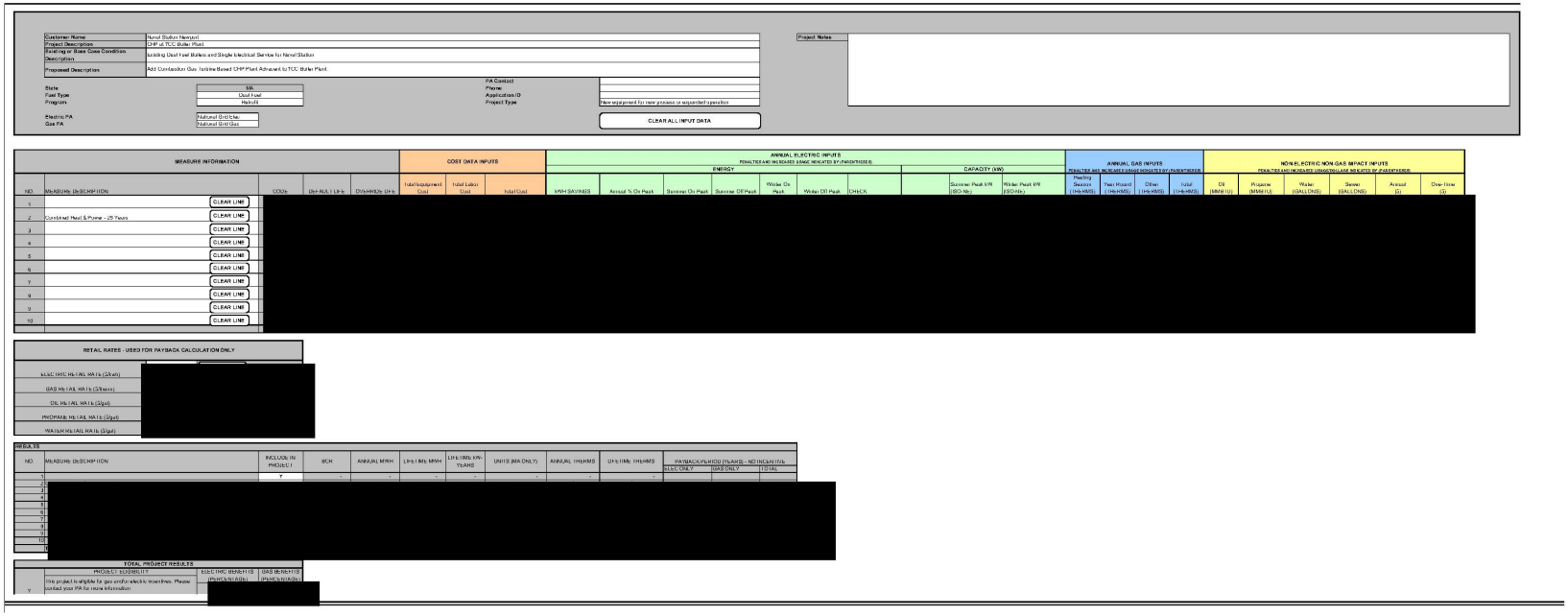
Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 7/10/2017 1:56:11 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]
Subject: Naval Station Newport BCR Tool Example Taurus Low Runtime
Attachments: Naval Station Newport BCR Tool Example Taurus Low Runtime.pdf

Naval Station Newport BCR To...



Customer Name	Naval Station Newport
Project Description	CHP at TCC Boiler Plant
Existing or Base Case Condition Description	Existing Dual Fuel Boilers and Single Electrical Service for Naval Station
Proposed Description	Add Combustion Gas Turbine-Based CHP Plant Advacent to TCC Boiler Plant.

State	RI
Fuel Type	Dual Fuel
Program	Retrofit
Electric PA	National Grid Elec
Gas PA	National Grid Gas
PA Contact	
Phone	
Application ID	
Project Type	New equipment for new process or expanded operation

CLEAR ALL INPUT DATA

Project Notes

MEASURE INFORMATION | COST DATA INPUTS | ANNUAL ELECTRIC INPUTS (PENALTIES AND INCREASED USAGE INDICATED BY PARENTHESES) | ANNUAL GAS INPUTS (PENALTIES AND INCREASED USAGE INDICATED BY PARENTHESES) | NON-ELECTRIC NON-GAS IMPACT INPUTS (PENALTIES AND INCREASED UNDESIRABLE IMPACTS OF PARENTHESES)

NO.	MEASURE DESCRIPTION	COCs	EUL/RUL Life	EVAL/NMDs Life	Total Equipment Cost	Total Labor Cost	Total Cost	kWh SAVINGS	Annual % On Peak	Summer On Peak	Summer Off Peak	Winter On Peak	Winter Off Peak	DHCK	Summer Peak kW (SO-Nb)	Winter Peak kW (SO-Nb)	Heating Season (HH:MM:SS)	Peak Hours (HH:MM:SS)	Other (HH:MM:SS)	Total (HH:MM:SS)	Oil (MMBtu)	Propane (MMBtu)	Water (GALLONS)	Steam (GALLONS)	Annual ($)	One-time ($)
1		CLEAR LINE																								
2	Combined Heat & Power - 25 Years	CLEAR LINE																								
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10		CLEAR LINE																								

RETAIL RATES - USED FOR PAYBACK CALCULATION ONLY

ELECTRIC RETAIL RATE ($/kWh)	
GAS RETAIL RATE ($/therm)	
OIL RETAIL RATE ($/gal)	
PROPANE RETAIL RATE ($/gal)	
WATER/SEWAGE RETAIL RATE ($/gal)	

RESULTS

NO.	MEASURE DESCRIPTION	INCLUDE IN PROJECT	IECK	ANNUAL MWH	Lifetime MWH	LIFETIME kW-YEARS	UNITS (MA ONLY)	ANNUAL therms	Lifetime therms	PAYBACK PERIOD (YEARS) - NO INCENTIVES ELEC ONLY	GAS ONLY	TOTAL
1		Y	-	-	-	-	-	-	-			
2												
3												
4												
5												
6												
7												
8												
9												
10												

TOTAL PROJECT RESULTS

PROJECT ELIGIBILITY	ELECTRIC BENEFITS (PASS/FAIL/N/A)	GAS BENEFITS (PASS/FAIL/N/A)
This project is eligible for gas and/or electric incentives. Please contact your PA for more information		

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 7/11/2017 9:40:01 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: Re: Navy CHP

:-)

Thanks Jed

On Jul 11, 2017, at 5:37 PM, Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com> wrote:

> Your out???
>
> On Jul 11, 2017, at 5:34 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:
>
> > Im out...
> >
> > Gerald(Jed) Ferris
> > NE CHP Project Manager
> > National Grid
> > 280 Melrose Street
> > Providence RI 02907
> > 401 784-7364 Work
> > 401 450-9416 Cell
> > Gerald.ferris@nationalgrid.com
> >
> > **From:** Dunham, Jeffrey B.
> > **Sent:** Tuesday, July 11, 2017 5:30 PM
> > **To:** Ferris, Gerald Jr
> > **Subject:** Re: Navy CHP
> >
> > Cause if we are going to do something out of the normal box with this project he will need to buy into it so I thought it best to include him
> > Did I mess up by doing that ?
> >
> > On Jul 11, 2017, at 4:24 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:
> >
> > > Explain to me why you included Mark D?
> > >
> > > Gerald(Jed) Ferris
> > > NE CHP Project Manager
> > > National Grid
> > > 280 Melrose Street
> > > Providence RI 02907
> > > 401 784-7364 Work
> > > 401 450-9416 Cell
> > > Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Monday, July 10, 2017 1:04 PM
To: Jim Falsetti
Cc: Dipetrillo, Mark; Ferris, Gerald Jr; Paine, Fred; paul.curran@bqenergy.com; naveen kapur
Subject: Navy CHP

Jim
Jed ran the number and the unit fails the NGrid benefit cost analysis (BCR) by a significant amount. I would like to have a conference call to discuss how we can still make this project attractive to NGrid. A 3400kw summer load on the unit would make it pass the BCR.
Who from the Navy would you recommend be on the call?
Can you also provide Jed with your modeling for the unit.
I would like to have this call prior to our next scheduled conference call so what is your availability prior to the 17th
Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 7/11/2017 9:39:02 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: Re: Navy CHP

He is familiar with the gas on the base and what type gas equipment feeds the different areas

On Jul 11, 2017, at 5:34 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:

> Im out...
>
> Gerald(Jed) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
> **From:** Dunham, Jeffrey B.
> **Sent:** Tuesday, July 11, 2017 5:30 PM
> **To:** Ferris, Gerald Jr
> **Subject:** Re: Navy CHP
>
> Cause if we are going to do something out of the normal box with this project he will need to buy into it so I thought it best to include him
> Did I mess up by doing that ?
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> On Jul 11, 2017, at 4:24 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:
>
> > Explain to me why you included Mark D?
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> > NE CHP Project Manager
> > National Grid
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> > Providence RI 02907
> > 401 784-7364 Work
> > 401 450-9416 Cell
> > Gerald.ferris@nationalgrid.com
> >
> > **From:** Dunham, Jeffrey B.
> > **Sent:** Monday, July 10, 2017 1:04 PM
> > **To:** Jim Falsetti
> > **Cc:** Dipetrillo, Mark; Ferris, Gerald Jr; Paine, Fred; paul.curran@bqenergy.com; naveen kapur
> > **Subject:** Navy CHP

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401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 7/11/2017 8:26:07 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; paul.curran@bqenergy.com; naveen kapur [naveenk@nkengineers.com]
Subject: RE: Navy CHP

Does your gas therm usage include your heat recovery and ultimate offset of Boiler usage in therms? One of the folks here in our group thinks you might have left that number off? Again if you could share the model it would be very helpful to understand the scope of the project we are looking at.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Monday, July 10, 2017 1:04 PM
To: Jim Falsetti
Cc: Dipetrillo, Mark; Ferris, Gerald Jr; Paine, Fred; paul.curran@bqenergy.com; naveen kapur
Subject: Navy CHP

Jim
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LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 7/12/2017 5:34:36 PM
To: Gerald.Ferris@nationalgrid.com
CC: Dunham, Jeffrey B. (Jeffrey.Dunham@nationalgrid.com) [jeffrey.dunham@nationalgrid.com]
Subject: FW: EXT || Re: Navy CHP

Jed,

You need to push him for a copy of their model, it is more than difficult for us to assess working like this.

From: naveen [mailto:naveenk@nkengineers.com]
Sent: Wednesday, July 12, 2017 1:22 PM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Jim Falsetti; Dipetrillo, Mark; Paine, Fred; paul.curran@bqenergy.com
Subject: EXT || Re: Navy CHP

Jed
I don't know if Jim got back to you, but please confirm if in the BCR study they turned off the gas turbine during the summer months. So there would be no electric or thermal output from the CHP. If I recall the CHP ran a bit more than 5,500 hours in our analysis
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

On Jul 11, 2017, at 4:26 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:

> Does your gas therm usage include your heat recovery and ultimate offset of Boiler usage in therms? One of the folks here in our group thinks you might have left that number off? Again if you could share the model it would be very helpful to understand the scope of the project we are looking at.
>
> Thanks
>
> Jed
>
> Gerald(Jed) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.

Sent: Monday, July 10, 2017 1:04 PM
To: Jim Falsetti
Cc: Dipetrillo, Mark; Ferris, Gerald Jr; Paine, Fred; paul.curran@bgenergy.com; naveen kapur
Subject: Navy CHP

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Jed ran the number and the unit fails the NGrid benefit cost analysis (BCR) by a significant amount. I would like to have a conference call to discuss how we can still make this project attractive to NGrid. A 3400kw summer load on the unit would make it pass the BCR.
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401-527-4055 Cell
315-460-8954 Fax

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You may report the matter by contacting us via our UK Contacts Page or our US Contacts Page (accessed by clicking on the appropriate link)

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For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 7/13/2017 12:00:07 PM
To: naveen [naveenk@nkengineers.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Jim Falsetti [jim.falsetti@bqenergy.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; paul.curran@bqenergy.com
Subject: RE: EXT || Re: Navy CHP

I only had the inputs and outputs, no excel spreadsheet to look at. It would be helpful to hone in what we are looking at if you could share the model.

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen [mailto:naveenk@nkengineers.com]
Sent: Wednesday, July 12, 2017 1:22 PM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Jim Falsetti; Dipetrillo, Mark; Paine, Fred; paul.curran@bqenergy.com
Subject: EXT || Re: Navy CHP

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Naveen Kapur, PE
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755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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Sent: Monday, July 10, 2017 1:04 PM
To: Jim Falsetti
Cc: Dipetrillo, Mark; Ferris, Gerald Jr; Paine, Fred; paul.curran@bgenergy.com; naveen kapur
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Sent: 7/17/2017 4:20:45 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
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Sent: 7/17/2017 7:14:30 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferrise@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]
Subject: FW: EXT || Re: Navy CHP
Attachments: 7-17-17 Naval Station Newport Summary.pdf

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Naval Station Newport - Combined Heat and Power Summary Information

		Pre-Cogen Data								
		Electricity					Steam			
Month	Hours per Month	Existing Site kWh	Billed Demand (kW)	Average kW	Total Elec Utility Charges	Avg Electricity Cost $/kW	Existing Steam Consumption (klbs)	Avg Hourly Steam Consumption klbm/hr (Existing)	Existing Boiler Fuel Cost ($)	Existing Boiler Fuel Usage (MMBTU)
Jan-15	[redacted]									
Feb-15										
Mar-15										
Apr-15										
May-15										
Jun-15										
Jul-15										
Aug-15										
Sep-15										
Oct-15										
Nov-15										
Dec-15										

	Post Project With CHP and Steam Turbine								
	Electricity				Steam				
Gas Turbine power Generation kWh	Avg. Turbine kW	Steam Turbine Power Generation (kWh)	Remainder of Energy to be Fed by NGrid (kWh)	Proposed Elec Utility Cost After CHP	Useful Cogen Steam Production (klbs) with Percent Uptime Unfired	Turbine Avg Steam Output (klbm/hr)	Steam Produced by Duct Burners (klbs)	Steam Required from Boilers (klbs)	Cost of Boiler Steam Post-Project ($)
[redacted]									

	Post Project With CHP and Steam Turbine					
	Natural Gas				Maintenance	
Cogen & Duct Burner Gas Usage (HHV)-Therms - with Percent Uptime	MMBTU Fuel Required by Combustion Gas Turbine & Duct Burner (MMBTU)	Cost of Gas For Cogen & Duct Burner ($)	MMBTU Fuel Required by Duct Burner to Supply Remaining Steam Requirements	MMBTU Fuel Required by Boilers to Supply Remaining Steam Requirements	Maintenance Costs for Combustion Gas Turbine ($)	Savings
[redacted]						

Naval Station Newport - Combined Heat and Power Summary Information

Pre-Project		
Current Boiler Fuel Usage (MMBTU)	[redacted]	
Current Boiler Gas Usage (MMBTU)		
Current Boiler Gas Usage (Therms)		
Current Boiler Oil Usage (MMBTU)		
Current kWh		
Post Project		
Proposed Turbine/Duct Burner Fuel Usage (MMBTU)		
Proposed Turbine Nat Gas Usage (Therms)		
Proposed Boiler Fuel Usage Post Turbine (MMBTU)		
Proposed Boiler Gas Usage Post Turbine (MMBTU)		
Proposed Boiler Gas Usage Post Turbine (Therms)		
Proposed Boiler Fuel Oil Usasge Post Turbine (MMBTU)		
Proposed Total Fuel Usage (MMBTU) Post Project (Turbine, Duct Burner and Boilers)		
Increase in Natural Gas Usage (Therms) Post Project		
Fuel Oil Savings (MMBTU)		
Net Electrical Production from Turbine (kWh)		
Proposed Electrical Purchases (kWh)		
Proposed Maintenance Costs		

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 7/17/2017 7:21:46 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Paul Curran [paul.curran@bqenergy.com]; naveen kapur [naveenk@nkengineers.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Afonso, Jacques R. [jacques.afonso@nationalgrid.com]; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [daniel.l.sullivan3@navy.mil]; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [john.reichert@navy.mil]; Pascual, Beth A CIV NAVFAC LANT, PW64 [beth.pascual@navy.mil]; Breckner, John K CIV NAVFAC MIDLANT, PW [john.breckner@navy.mil]; Paine, Fred [fred.paine@nationalgrid.com]
Subject: Newport Navy CHP July 17th meeting notes

action items from today's call

Navy summary document sent to Tom Dion to review and if nothing else is need to provide availability/construction cost letter

Jed, Naveen, Jim F and myself to have a conference call Thursday July 20th to review the results of the modeling and discuss options

Jim Falsetti to send me the modeling document by Wed. July 19th

Interconnection application to be submitted by July 25th

Jeffrey Dunham
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From: Dunham, Jeffrey B.
Sent: Tuesday, June 27, 2017 11:09 AM
To: 'Jim Falsetti'
Cc: 'Paul Curran'; 'naveen kapur'; Ferris, Gerald Jr; Dion, Thomas; Afonso, Jacques R.; 'Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport'; 'Reichert, John C CIV NAVFAC MIDLANT, PWD Newport'; 'Pascual, Beth A CIV NAVFAC LANT, PW64'; 'Breckner, John K CIV NAVFAC MIDLANT, PW'; Paine, Fred
Subject: Newport Navy CHP June 26th meeting notes

Discussion

-Tom Dion NGrid waiting on final data from BQEnergy to provide a gas availability/construction cost letter . Data should be provided within the next week or two.

-Unit target date to be on line is late 2018

-Curtailment data has been removed as an action item for this project

-NGrid interconnection study application will be submitted by July 15th

-Jeff Dunham NGrid to complete the analysis to determine if the 5% energy efficiency thresholds have been satisfied by the Navy.

-Jed Ferris NGrid to be provided with program modeling including gas input, kwh output and thermal recovered data by July 15th

-CHP unit will operate 5300 hours annually

-Next call July 17th

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> Jed ran the number and the unit fails the NGrid benefit cost analysis (BCR) by a significant amount. I would like to have a conference call to discuss how we can still make this project attractive to NGrid. A 3400kw summer load on the unit would make it pass the BCR.
> Who from the Navy would you recommend be on the call?
> Can you also provide Jed with your modeling for the unit.
> I would like to have this call prior to our next scheduled conference call so what is your availability prior to the 17th
> Jeff
>
> Jeffrey Dunham
> Certified Energy Manager
> LEED Accredited Professional (AP)
> National Grid
> 280 Melrose St.

Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

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Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 7/17/2017 4:17:40 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: EXT || Re: Navy CHP

Even with NDA?

From: Ferris, Gerald Jr
Sent: Monday, July 17, 2017 12:06 PM
To: Paine, Fred
Subject: RE: EXT || Re: Navy CHP

I did ask; they are worried their proprietary information will get out…

I did not talk direct to them phone tag but I said if you cannot share the model then we will have to do our own study and that the Navy will have to participate with a 50/50 copay and that model is what we will be using going forward for offer letter, post inspection and commissioning comparisons.

It still looks like they won't pass, it looks like the gas offset for the boiler is included(in words anyways)

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Paine, Fred
Sent: Monday, July 17, 2017 11:55 AM
To: Ferris, Gerald Jr
Subject: FW: EXT || Re: Navy CHP

Please call and politely ask for the model and what is hesitancy to share it with us ?

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Monday, July 17, 2017 11:52 AM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Jim Falsetti; Dipetrillo, Mark; Paine, Fred; paul.curran@bqenergy.com
Subject: Re: EXT || Re: Navy CHP

Jed
Attached is a PDF of the inputs we used for an old version of the BCR tool, & a summary of relevant project specifics. Hope this is what you are looking for
Feel free to call if you need to discuss any part of it
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc

755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Thursday, July 13, 2017 at 8:00 AM
To: naveen <naveenk@nkengineers.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim Falsetti <jim.falsetti@bqenergy.com>, "Dipetrillo, Mark" <Mark.DiPetrillo@nationalgrid.com>, "Paine, Fred" <Fred.Paine@nationalgrid.com>, "paul.curran@bqenergy.com" <paul.curran@bqenergy.com>
Subject: RE: EXT || Re: Navy CHP

I only had the inputs and outputs, no excel spreadsheet to look at. It would be helpful to hone in what we are looking at if you could share the model.

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen [mailto:naveenk@nkengineers.com]
Sent: Wednesday, July 12, 2017 1:22 PM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Jim Falsetti; Dipetrillo, Mark; Paine, Fred; paul.curran@bqenergy.com
Subject: EXT || Re: Navy CHP

Jed
I don't know if Jim got back to you, but please confirm if in the BCR study they turned off the gas turbine during the summer months. So there would be no electric or thermal output from the CHP. If I recall the CHP ran a bit more than 5,500 hours in our analysis
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

On Jul 11, 2017, at 4:26 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:

> Does your gas therm usage include your heat recovery and ultimate offset of Boiler usage in therms? One of the folks here in our group thinks you might have left that number off? Again if you could share the model it would be very helpful to understand the scope of the project we are looking at.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Monday, July 10, 2017 1:04 PM
To: Jim Falsetti
Cc: Dipetrillo, Mark; Ferris, Gerald Jr; Paine, Fred; paul.curran@bqenergy.com; naveen kapur
Subject: Navy CHP

Jim
Jed ran the number and the unit fails the NGrid benefit cost analysis (BCR) by a significant amount. I would like to have a conference call to discuss how we can still make this project attractive to NGrid. A 3400kw summer load on the unit would make it pass the BCR.
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Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 7/26/2017 12:54:53 PM
To: Rua, Maribel [maribel.rua@nationalgrid.com]; Vigneault, Lauren B. [lauren.vigneault@nationalgrid.com]; Toomey, Jacob [jacob.toomey@nationalgrid.com]
CC: Thistle, Patricia [patricia.dougherty@nationalgrid.com]; Korkmaz, Teoman [teoman.korkmaz@nationalgrid.com]
Subject: FW: EXT || Cumberland Farms Portsmouth New Service Request 1873-020
Attachments: ACAD1873-020-FINL-ACAD-UTG-20170707-CFG07.0 Utilities.dwg; 1812-1824 E Main Rd Portsmouth Sketch_p50836682_1.pdf

Good morning,
Could you also update 1812 East Main Rd Portsmouth for Cumberland Farms?
Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Marianne Diffin [mailto:mdiffin@diprete-eng.com]
Sent: Friday, July 07, 2017 11:10 AM
To: Dion, Thomas
Subject: EXT || Cumberland Farms Portsmouth New Service Request 1873-020

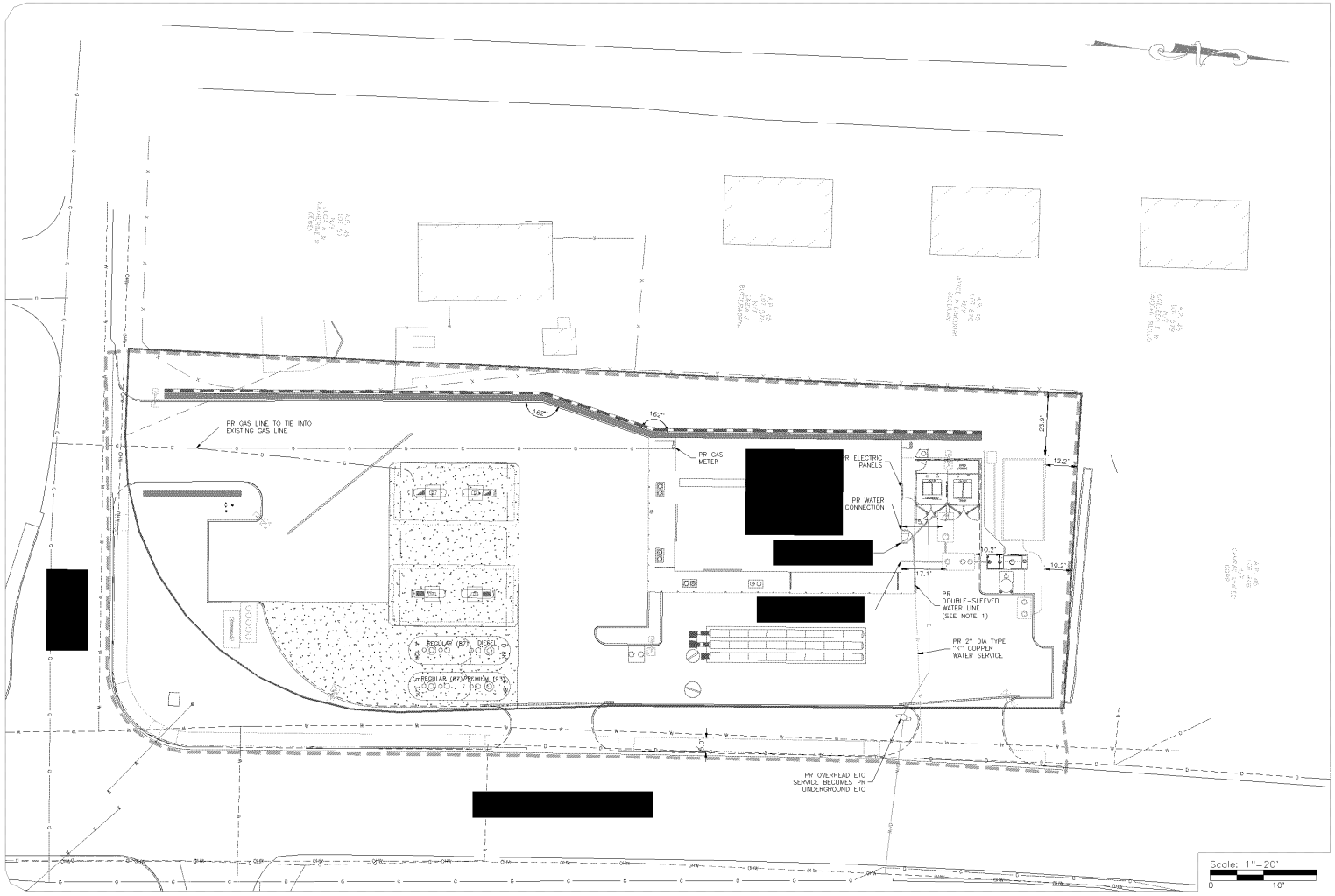
Hi Tom,

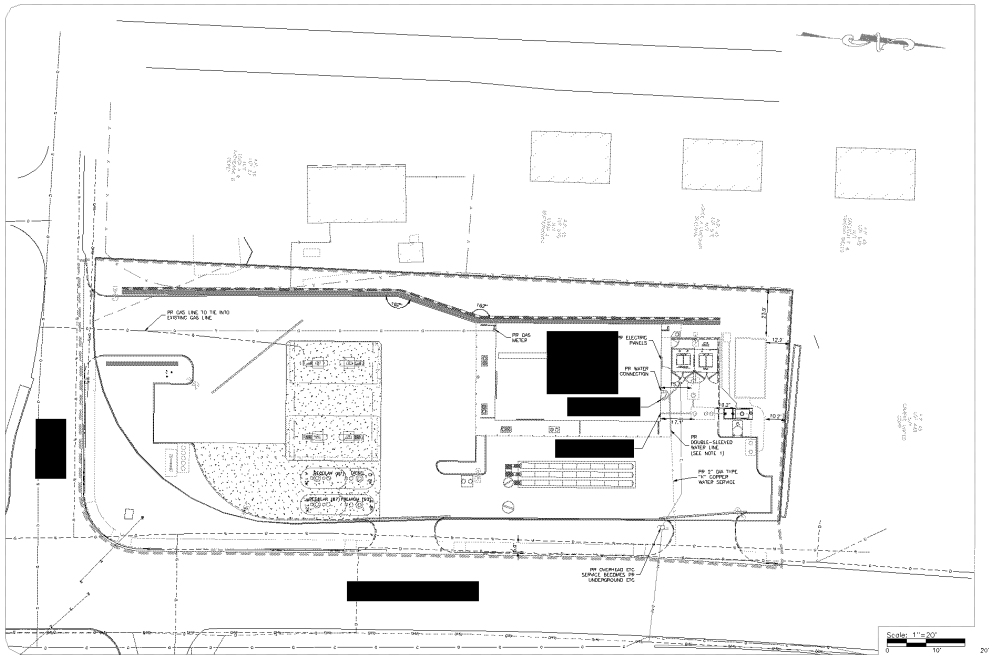
We are assisting the Cumberland Farms located at 1812 East Main Road, Portsmouth, Rhode Island with a raze and rebuild project that will be needing natural gas service. The customer would be Cumberland Farms and monthly utility bills would be sent to Cumberland Farms ATTN: A/P Department, 165 Flanders Road, Westborough, MA 01581. We have begun the process for existing gas cutoff with Lauren Maclean. As per correspondence with Eric Prive of my office in regards to a similar project, I am including the CAD File and Load Letter for this site. Please let me know if you need anything else.

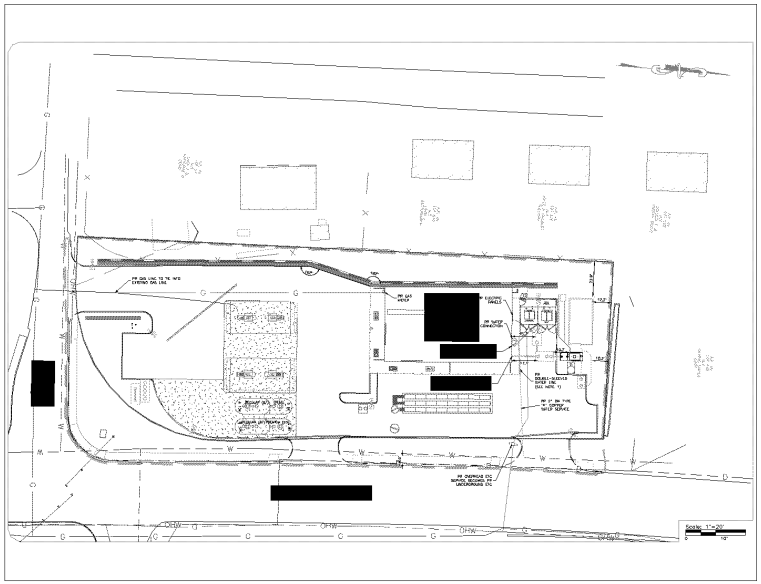
Cheers,

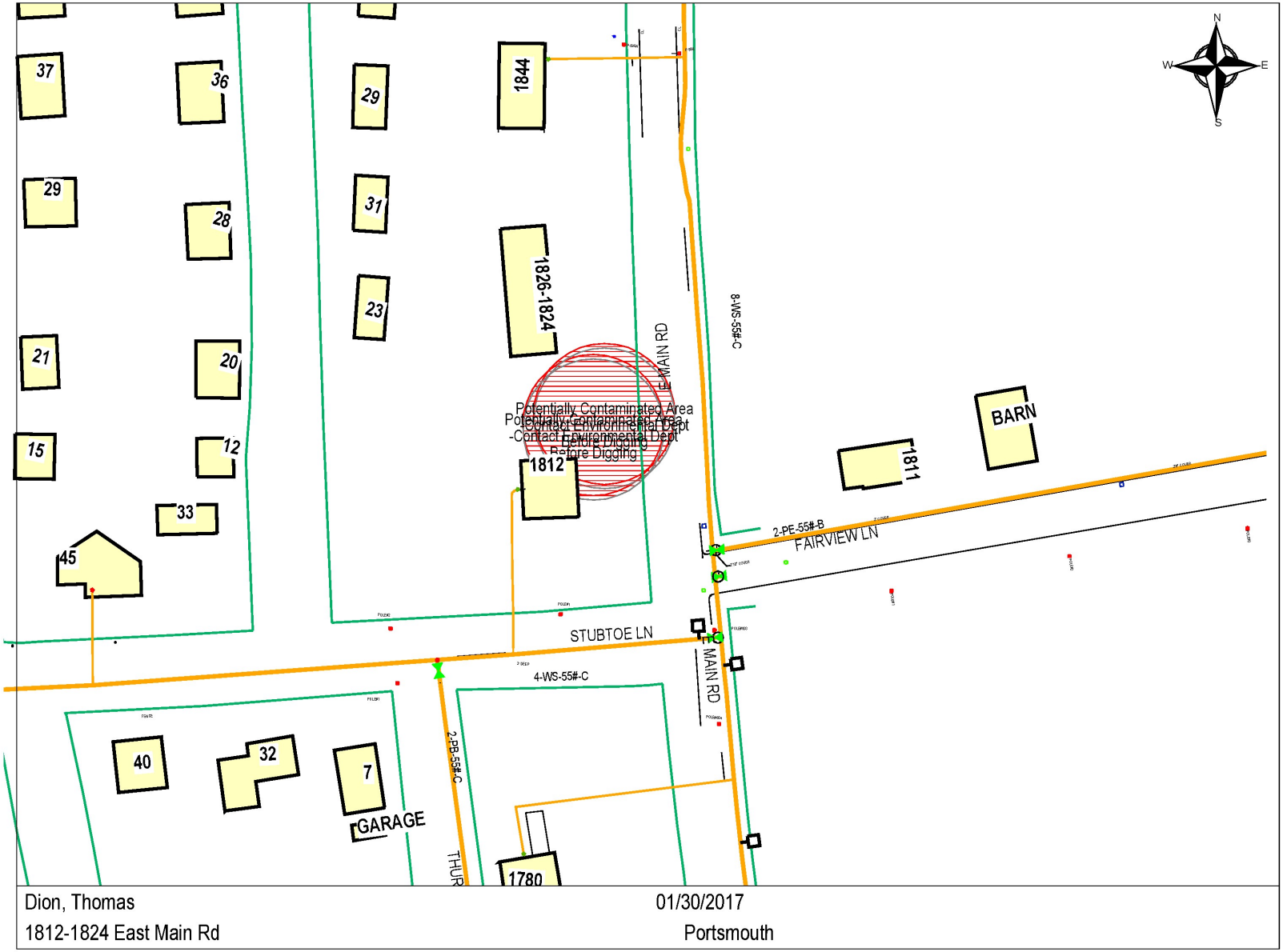
Marianne Diffin
Civil Engineer

DiPrete Engineering | BOSTON PROVIDENCE NEWPORT
T 401-943-1000 | C 401-787-8831 | Two Stafford Court Cranston, RI 02920
diprete-eng.com | Facebook | Twitter | Linked In | City/Town


PR GAS LINE TO TIE INTO EXISTING GAS LINE
PR GAS METER
PR ELECTRIC PANELS
PR WATER CONNECTION
PR DOUBLE-SLEEVED WATER LINE (SEE NOTE 1)
PR 2" DIA TYPE "K" COPPER WATER SERVICE
PR OVERHEAD ETC SERVICE BECOMES PR UNDERGROUND ETC
REGULAR (87) DIESEL
REGULAR (87) PREMIUM (93)
162'
162'
23.5'
12.2'
10.2'
10.2'
17.1'
Scale: 1"=20'
0
10'
20'
40'


PROPOSED GAS LINE TO TIE INTO EXISTING GAS LINE
PROPOSED GAS METER
PROPOSED ELECTRIC PANELS
PROPOSED WATER CONNECTION
PROPOSED DOUBLE-SLEEVED WATER LINE (SEE NOTE 1)
PROPOSED 1" GAS TYPE "K" COPPER WATER SERVICE
PROPOSED CHEMFLUID STC SERVICE BECOMES PROPOSED UNDERGROUND STC
Scale: 1" = 20'
0
10'
20'
40'




37
36
29
1844
29
28
31
1826-1824
23
21
20
15
12
33
45
1812
E MAIN RD
8-WS-55#-C
Potentially Contaminated Area
-Contact Environmental Dept
Before Digging
BARN
1811
2-PE-55#-B
FAIRVIEW LN
STUBTOE LN
4-WS-55#-C
E MAIN RD
40
32
7
GARAGE
2-PB-55#-C
THUR
1780
N
W
E
S
Dion, Thomas
1812-1824 East Main Rd
01/30/2017
Portsmouth

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 8/18/2017 2:56:40 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]; naveen [naveenk@nkengineers.com]
CC: Greg Hester [greg.hester@ebdengineering.com]
Subject: RE: EXT || BCR analysis for Newport Naval Base

Few suggestions;

> The super peak times are 1-5pm not 4, I am hoping that is not a big deal.
>
> Can you return the coincidental average KW reduction during the 1-5PM M-F June, July and August. Three numbers.
>
> I need the cost for each option to enter into the spreadsheet.

I can talk this afternoon, Dinesh is away at a conference.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen
Cc: Greg Hester
Subject: EXT || BCR analysis for Newport Naval Base

Jed – we discussed the next steps with the Navy, and in the attached PDF there are seven cases. Cases 4-7 all meet the 55% hurdle with a comfortable design margin, and we would like to know if they meet the BCR hurdle.

Separately, we would like to discuss one more case with yourself and Dinesh.
Would you be available for a call later today? Best,

James Falsetti Phone/Text 203-512-7446
jim.falsetti@bqenergy.com www.bqenergy.com
BQ Energy llc
400 Market Industrial Park
Suite 32
Wappingers Falls, NY 12590

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 8/21/2017 7:09:37 PM
To: naveen kapur [naveenk@nkengineers.com]; Jim Falsetti [jim.falsetti@bqenergy.com]; Greg Hester [greg.hester@ebdengineering.com]
Subject: RE: EXT || BCR analysis for Newport Naval Base

Can you folks just add another column with total cost to each option.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Monday, August 21, 2017 2:58 PM
To: Jim Falsetti; Greg Hester; Ferris, Gerald Jr
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jim
I had another discussion with Rob, who feels that if we have to provide the cooling towers etc. we should carry $2,500/KW
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Monday, August 21, 2017 at 11:42 AM
To: Greg Hester <greg.hester@ebdengineering.com>, "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>, naveen <naveenk@nkengineers.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Jed and Greg,

I discussed this with Naveen, and we thought a number of $4million for the steam turbine would be a good guess.

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, August 18, 2017 11:23 AM
To: Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Jim Falsetti <jim.falsetti@bqenergy.com>; naveen <naveenk@nkengineers.com>
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed,

Please see the attached. I added a column with average kW reductions. The model did include operation from 1-5 pm. Sorry for the confusion.

Naveen, can you provide your opinion on the additional cost for the 2 MW steam turbine that would be added to cases 5 & 7?

Thank you.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Friday, August 18, 2017 at 10:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen <naveenk@nkengineers.com>
Cc: Greg Hester <greg.hester@ebdengineering.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Few suggestions;

> The super peak times are 1-5pm not 4, I am hoping that is not a big deal.
>
> Can you return the coincidental average KW reduction during the 1-5PM M-F June, July and August. Three numbers.
>
> I need the cost for each option to enter into the spreadsheet.

I can talk this afternoon, Dinesh is away at a conference.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen
Cc: Greg Hester
Subject: EXT || BCR analysis for Newport Naval Base

Jed – we discussed the next steps with the Navy, and in the attached PDF there are seven cases. Cases 4-7 all meet the 55% hurdle with a comfortable design margin, and we would like to know if they meet the BCR hurdle.

Separately, we would like to discuss one more case with yourself and Dinesh.
Would you be available for a call later today? Best,

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 8/21/2017 12:16:16 PM
To: Greg Hester [greg.hester@ebdengineering.com]; Jim Falsetti [jim.falsetti@bqenergy.com]; naveen [naveenk@nkengineers.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || BCR analysis for Newport Naval Base

Hi guys,

I still would need a cost to try and screen these measures you sent me. The cost doesn't have to be perfect, just in the ball park. It gives us something to look at.

Do any of these options, run normally and utilize the heat?

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, August 18, 2017 11:23 AM
To: Ferris, Gerald Jr; Jim Falsetti; naveen
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed,

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860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Friday, August 18, 2017 at 10:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen <naveenk@nkengineers.com>
Cc: Greg Hester <greg.hester@ebdengineering.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

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Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen
Cc: Greg Hester
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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 8/23/2017 8:41:09 PM
To: Patel, Dinesh [dinesh.patel@nationalgrid.com]
CC: naveen [naveenk@nkengineers.com]
Subject: FW: EXT || BCR analysis for Newport Naval Base
Attachments: Newport CHP Model - 8-19-17 Taurus & Mercury Additional Options .pdf

Hi Dinesh,

Here are some of the options they have been entertaining for your review tomorrow with Naveen.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, August 18, 2017 11:23 AM
To: Ferris, Gerald Jr; Jim Falsetti; naveen
Subject: Re: EXT || BCR analysis for Newport Naval Base

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Marlborough, CT 06447
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860-883-6486 C
Greg.Hester@EBDEngineering.com

www.ebdengineering.com

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Date: Friday, August 18, 2017 at 10:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen <naveenk@nkengineers.com>
Cc: Greg Hester <greg.hester@ebdengineering.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

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Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen
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Subject: EXT || BCR analysis for Newport Naval Base

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Sent: 8/29/2017 10:39:16 AM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Greg Hester [greg.hester@ebdengineering.com]; naveen [naveenk@nkengineers.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
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Sent: 8/29/2017 12:22:24 PM
To: naveen kapur [naveenk@nkengineers.com]
Subject: RE: EXT || BCR analysis for Newport Naval Base

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Sent: Tuesday, August 29, 2017 8:04 AM
To: Jim Falsetti; Greg Hester; Ferris, Gerald Jr; Dunham, Jeffrey B.
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on behalf of gerald.ferris@nationalgrid.com [gerald.ferris@nationalgrid.com]
Sent: 8/29/2017 10:39:15 AM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
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Sent: 8/31/2017 12:38:47 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: FW: EXT || BCR analysis for Newport Naval Base
Attachments: Newport CHP Model - 8-17-17 Taurus & Mercury Additional Options .pdf; Newport CHP Model - 8-19-17 Taurus & Mercury Additional Options .pdf

Hi Mark,

Long story but here are the things we need to screen with the new BCR for future. The costs are shown below and they have narrowed the options down to 1, 2, 3 for screening runs.

Any help in coming up with ideas on how to get this to pass would be greatly appreciated. Jeff feels the Navy is close to pulling the plug at this point and the Navy is actually looking to approach the PUC to get a pass on the 55% OEE metric.

If you want to schedule a meeting with the engineers, let me know.

Thanks

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From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Wednesday, August 30, 2017 12:22 PM
To: Ferris, Gerald Jr
Cc: Jim Falsetti; Greg Hester
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed
Here are the cost estimates for the options, as stated in the attachment, that might work:
Base Option - $17.5M
Option 1 - [redacted]
Option 2 -
Option 3 -

Thanks Jed

Naveen Kapur, PE
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5	Operate Taurus 70 Gas Turbine at Full Load - 1pm - 4pm Only From May 8 - Oct 14 - With 2MW Steam Turbine									
6	Operate Taurus 70 Gas Turbine at ~50% Load - 1pm - 4pm Only From May 8 - Oct 14 - No Steam Turbine									
7	Operate Taurus 70 Gas Turbine at ~50% Load - 1pm - 4pm Only From May 8 - Oct 14 - With 2MW Steam Turbine									

Newport CHP - Additional Modeled Options

Option #	Option Description	CHP Plant Operational Hours	Annual Electrical Energy Generated (kIWh)	Annual Fuel Consumed (MMBTU)	Annual Heat Recovered (MMBTU)	Overall Efficiency (Percent)	Estimated Annual Dollar Savings ($)	Total Generation Capacity (kW)	Generated kWh as % of Total Site Load	Notes	Average kW Reduction June, July and August
Base Option Originally Proposed	Operate Taurus 70 Gas Turbine 5,791 hours - No Summer Hours										
1	Operate Taurus 70 Gas Turbine and 2 MW Condensing Turbine All Year Round										
2	Operate Taurus 70 Gas Turbine Year Round and Connect CHP Plant to 20 klb/hr Thermal Load in Summer									Savings does not include the fossil fuel savings for what it currently costs to generate the 20 klb/hr thermal load	
3	Operate Mercury 50 Gas Turbine Year Round and Connect CHP Plant to 15 klb/hr Thermal Load in Summer									Savings does not include the fossil fuel savings for what it currently costs to generate the 15 klb/hr thermal load	
4	Operate Taurus 70 Gas Turbine at Full Load - 1pm - 4pm Only From May 8 - Oct 14 - No Steam Turbine										
5	Operate Taurus 70 Gas Turbine at Full Load - 1pm - 4pm Only From May 8 - Oct 14 - With 2MW Steam Turbine										
6	Operate Taurus 70 Gas Turbine at ~50% Load - 1pm - 4pm Only From May 8 - Oct 14 - No Steam Turbine										
7	Operate Taurus 70 Gas Turbine at ~50% Load - 1pm - 4pm Only From May 8 - Oct 14 - With 2MW Steam Turbine										

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/7/2017 3:45:28 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
Subject: RE: EXT || BCR analysis for Newport Naval Base

Sorry, I thought Naveen only gave out 2 real quotes. Let me run and let you know.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, September 07, 2017 9:41 AM
To: Ferris, Gerald Jr
Subject: FW: EXT || BCR analysis for Newport Naval Base

Jed, these four. Best,

Jim Falsetti BQENERGY.COM Ph/Text
203-512-7446
Sent from my Windows 10 phone (please excuse typing errors)

From: naveen kapur
Sent: Wednesday, August 30, 2017 10:22 AM
To: Ferris, Gerald Jr
Cc: Jim Falsetti; Greg Hester
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed
Here are the cost estimates for the options, as stated in the attachment, that might work:
Base Option - [redacted]
Option 1 -
Option 2 -
Option 3 -

Thanks Jed

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200

(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, August 29, 2017 at 8:22 AM
To: naveen kapur <naveenk@nkengineers.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Can you give me a high level cost? $3500/KW??? We are trying to bend our rules internally but it is hard to discuss particulars with the higher ups when I cannot give them a real BCR run.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Tuesday, August 29, 2017 8:04 AM
To: Jim Falsetti; Greg Hester; Ferris, Gerald Jr; Dunham, Jeffrey B.
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jim
Please see my earlier emails. I think this is an exercise in futility as we can't get past the first hurdle of efficiency. Also the Navy has ruled out the options with limited operation during the summer months. Not sure what the purpose of the BCR tool will be for all these options. If you still want to pursue it, we will need 3 weeks to estimate the costs of the options
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Tuesday, August 29, 2017 at 4:08 AM
To: Greg Hester <greg.hester@ebdengineering.com>, "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>, naveen <naveenk@nkengineers.com>, "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Jed and Jeff – the Navy has asked for the BCR results for each of these cases. Do you have them? If you could add a column called BCR results, that would be great. Best,

Jim Falsetti **www.bqenergy.com** **Phone/Text 203-512-7446**

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, August 18, 2017 11:23 AM
To: Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Jim Falsetti <jim.falsetti@bqenergy.com>; naveen <naveenk@nkengineers.com>
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed,

Please see the attached. I added a column with average kW reductions. The model did include operation from 1-5 pm. Sorry for the confusion.

Naveen, can you provide your opinion on the additional cost for the 2 MW steam turbine that would be added to cases 5 & 7?

Thank you.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Friday, August 18, 2017 at 10:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen <naveenk@nkengineers.com>
Cc: Greg Hester <greg.hester@ebdengineering.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Few suggestions;

> The super peak times are 1-5pm not 4, I am hoping that is not a big deal.
>
> Can you return the coincidental average KW reduction during the 1-5PM M-F June, July and August. Three numbers.

I need the cost for each option to enter into the spreadsheet.

I can talk this afternoon, Dinesh is away at a conference.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen
Cc: Greg Hester
Subject: EXT || BCR analysis for Newport Naval Base

Jed – we discussed the next steps with the Navy, and in the attached PDF there are seven cases. Cases 4-7 all meet the 55% hurdle with a comfortable design margin, and we would like to know if they meet the BCR hurdle.

Separately, we would like to discuss one more case with yourself and Dinesh.
Would you be available for a call later today? Best,

James Falsetti Phone/Text 203-512-7446
jim.falsetti@bqenergy.com www.bqenergy.com
BQ Energy llc
400 Market Industrial Park
Suite 32
Wappingers Falls, NY 12590

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Appointment

From: Jim Falsetti [jim.falsetti@bqenergy.com]
Sent: 9/11/2017 9:27:43 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport [robert.mulhern@navy.mil]; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport [james.f.carlson1@navy.mil]; Smith, Elizabeth A CIV NAVFAC MIDLANT [elizabeth.a.smith2@navy.mil]
CC: Paul Curran [paul.curran@bqenergy.com]; naveen kapur [naveenk@nkengineers.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Afonso, Jacques R. [jacques.afonso@nationalgrid.com]; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [daniel.l.sullivan3@navy.mil]; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [john.reichert@navy.mil]; Pascual, Beth A CIV NAVFAC LANT, PW64 [beth.pascual@navy.mil]; Breckner, John K CIV NAVFAC MIDLANT, PW [john.breckner@navy.mil]; Paine, Fred [fred.paine@nationalgrid.com]; Gallagher, Andrew T CIV NAVFAC MIDLANT, PW [andrew.gallagher@navy.mil]

Subject: EXT || Newport Navy CHP - National Grid, Navy, and BQ Discussions
Attachments: RE_ EXT __ Re_ Newport CHP Model - 8-19-17 Taurus Mercury Additional Options_ (2).msg
Location: conf call JSF 877-252-4076 PIN 1234567#

Start: 9/12/2017 5:30:00 PM
End: 9/12/2017 6:00:00 PM
Show Time As: Tentative

Recurrence: (none)

All -attached please find NGRID analysis summaries from Jed. We will discuss tomorrow.

Look for updates every two weeks. See conference call instruction in the Location box on this meeting invite. Jim

---

From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Monday, May 22, 2017 11:08 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Dion, Thomas <Thomas.Dion@nationalgrid.com>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport <daniel.l.sullivan3@navy.mil>; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport <john.reichert@navy.mil>; Pascual, Beth A CIV NAVFAC LANT, PW64 <beth.pascual@navy.mil>; Breckner, John K CIV NAVFAC MIDLANT, PW <john.breckner@navy.mil>; Paine, Fred <Fred.Paine@nationalgrid.com>
Subject: RE: Newport Navy CHP May 8th meeting notes and action items

Jim
I never received an e mail invite for a call today at 1
Should we start the calls next Monday?
Please advise
Thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dunham, Jeffrey B.
Sent: Tuesday, May 16, 2017 10:13 AM
To: 'Jim Falsetti'
Cc: Paul Curran; naveen kapur; Ferris, Gerald Jr; Dion, Thomas; Afonso, Jacques R.; 'Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport'; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64; Breckner, John K CIV NAVFAC MIDLANT, PW; Paine, Fred
Subject: Newport Navy CHP May 8th meeting notes and action items

Discussion

- Firm gas service proposed for the CHP
- Existing non-firm gas service to stay in place
- Cost associated with the new gas service will be determined once the gas loads and hours of operation are confirmed
- CHP will be privately owned and the gas account will not be in the Navyâ€™s name
- Jim and Jeff will be the point of contact for all correspondence
- CHP will not operate during the summer months there is no thermal load

Action items
Jaques Afonso to provide Jeff historical curtailment penalty data for Navy Account
Jaques Afonso to provide Jeff a copy of the firm gas rates and also the electric G62 rate
Jeff Dunham to determine if the 5% energy efficiency reduction has been accomplished
Jim Falsetti to provide Jeff load profile by month and hours of operation
Jim Falsetti will send out an outlook invite to all parties for a standing meeting every other Monday at 1, next conference call should be on Monday May 22nd (invite still needs to be sent out to folks)

Folks if I missed anything feel free to comment

Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, April 25, 2017 2:36 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur; Dunham, Jeffrey B.; Mirabile, Gerald J.
Subject: EXT || RE: Newport Navy CHP/Gas Consumption for the Taurus 70

Jed, we are still going forward. I think our last communication was on natural gas availability, and determining the gas situation was necessary before we went on to next steps. I believe we sent the consumption information. Do you require more information in order to provide an update on the gas availability at the site? Best

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Ferris, Gerald Jr [mailto:Gerald.Ferris@nationalgrid.com]
Sent: Tuesday, April 25, 2017 2:22 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Paul Curran <paul.curran@bqenergy.com>; naveen kapur <naveenk@nkengineers.com>; Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Mirabile, Gerald J. <Gerald.Mirabile@nationalgrid.com>
Subject: Newport Navy CHP/Gas Consumption for the Taurus 70

Hey folks,

I have not heard from you guys in a while. Where does this project sit? Are we moving forward?

Have you narrowed down the size? Can you provide the Energy Efficiency calculations to us?

Let us know the timeline for next steps if possible.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Program Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Tuesday, March 07, 2017 2:56 PM
To: Ferris, Gerald Jr
Cc: Paul Curran; naveen kapur
Subject: EXT || FW: Gas Consumption for the Taurus 70

Jed â€“ sorry for the delay â€“ attached is the estimated maximum gas consumption for the GT/HRSG/ST we have selected. Naveen also estimated the additional consumption from the duct burners, and has a caution about adding this gas consumption to the Navyâ€™s current steam boiler consumption. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Friday, March 3, 2017 3:30 PM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>
Subject: Gas Consumption for the Taurus 70

Jim

An estimate of Taurus 70 performance is shown below. I would think for the gas company they are most concerned with maximum gas requirements during the winter when their system is the most stressed. The

maximum capacity of the turbine at 0 degrees OAT is shown below (data from Solar Turbines) and the fuel consumption on a lower heating value basis is ~84.21 mmbtu/hr.

As far as the duct burner, we were looking at duct firing ad additional 40 klb/hr of steam with the Taurus 70. This equates to an additional ~ 40-41 mmbtu/hr fuel input on an LHV basis.

image001.png

Jim, please make sure that NGRID does not add the existing boiler gas consumption to the CHP gas consumption. This is because when the turbine is operating, in most instances, the boilers will not be required to operate. The Navy may however put one, or more, of their boilers in hot standy, which will increase the gas consumption slightly

Hope this helps

Have a great weekend

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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RE_ EXT __ Re_ Newport CHP M...

Elevation	feet	100
Inlet Loss	in H20	7.0
Exhaust Loss	in H20	10.0

		1	2	3	4	5
Engine Inlet Temperature	deg F	10.0	20.0	30.0	40.0	50.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0
Optimum Equipment Speed	RPM	0	0	0	0	0
Specified Load*	kW	FULL	FULL	FULL	FULL	FULL
Net Output Power*	kW	8427	8178	7930	7688	7412
Fuel Flow	mmBtu/hr	84.21	82.18	80.18	78.25	76.16
Heat Rate*	Btu/kW-hr	9993	10048	10110	10178	10277

Message

From: Ferris, Gerald Jr [Gerald.Ferris@nationalgrid.com]
Sent: 9/11/2017 8:34:05 PM
To: naveen kapur [naveenk@nkengineers.com]; Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || Re: Newport CHP Model - 8-19-17 Taurus Mercury Additional Options_ (2)
Attachments: Navy BCR Draft Screen_Option 2 and Option 3.pdf; Navy BCR Draft Screen_Option Base and Option 1.pdf

I tried to run this.

There are two measures per BCR run. Each measure is one of the options.

Let me know questions before tomorrow if there are problems.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Monday, September 11, 2017 10:16 AM
To: Ferris, Gerald Jr; Jim Falsetti
Cc: Dunham, Jeffrey B.
Subject: EXT || Re: Newport CHP Model - 8-19-17 Taurus Mercury Additional Options_ (2)

Jed
We have added the estimated project costs for all options. The maintenance costs are also shown. These estimated costs for maintenance are for the turbine, the HRSG &, where applicable, the steam turbine. These costs do not include any operating costs or the costs of maintenance of BOP equipment. The latter is typically done by the plant personnel
Please also be aware that the Navy has rejected Options 4-7
Hope this helps
Thanks

Naveen Kapur, PE
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755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Friday, September 8, 2017 at 5:52 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen kapur <naveenk@nkengineers.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
Subject: RE: Newport CHP Model - 8-19-17 Taurus Mercury Additional Options_ (2)

Can you also give me the yearly maintenance cost to this request for these 4 options in addition to the winter Super peak KW and Summer peak KW.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Ferris, Gerald Jr
Sent: Friday, September 08, 2017 5:33 AM
To: 'Jim Falsetti'; 'naveen kapur'
Subject: Newport CHP Model - 8-19-17 Taurus Mercury Additional Options_ (2)

Hi Guys,

The four options you have chosen do not have Summer KW values that Greg Hester sent me. This number is very valuable to the State mandated BCR value when screening. I cannot proceed until it is provided.

Have the option numbers got reorganized? Could you give me the summer KW values?

<< File: Newport CHP Model - 8-19-17 Taurus Mercury Additional Options_ (2).pdf >>

Thanks

Jed

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Custom Screening Inputs and Screening Results
Printed on 9/11/2017

2016 Dual Fuel Custom Screening Tool - Final
Finalized on 1/22/16
2017 Dual Fuel Custom Screening Tool - RI CHP_v1_091117

Customer Name	Navy
Project Description	Multiple runs of projects Measure 1 is Option2 (57.5% OEE), Measure 2 is Option 3 (not 59.5% OEE)
Existing or Base Case Condition Description	Normal Run
Proposed Description	7000 kW system with heat recovery
State	RI
Fuel Type	Electric
Program	Retrofit
Electric PA	National Grid Elec
Gas PA	National Grid Gas
PA Contact	Jad Ferris
Phone	4017947364
Application ID	
Project Type	New equipment for new process or expanded operation

CLEAR ALL INPUT DATA

Project Notes: Option 2 is running all year round, connecting chilled water load, 57.5% OEE. Option 3 is running a 5000 kw gas turbine and connecting chilled water load all year round 59.5% OEE

NO.	MEASURE DESCRIPTION		CODE	DEFAULT LIFE	OVERRIDE LIFE	Total Equipment Cost	Total Labor Cost	Total Cost	kWH SAVINGS	Annual % On Peak	Summer On Peak	Summer Off Peak	Winter On Peak	Winter Off Peak	CHECK		Summer Peak kW (ISO-NE)	Winter Peak kW (ISO-NE)	Heating Season (THERMS)	Year Round (THERMS)	Other (THERMS)	Total (THERMS)	Oil (MMBTU)	Propane (MMBTU)	Water (GALLONS)	Sewer (GALLONS)	Annual ($)	One-Time ($)
1	Combined Heat & Power - 20 Years	CLEAR LINE	CHP20	20		[redacted]	-	[redacted]	[redacted]	23%	0%	0%	41%	59%	OK	DEFAULT	7,654.0	8,659.0		(7,459,780)		(7,459,780)					[redacted]	
2	Combined Heat & Power - 20 Years	CLEAR LINE	CHP20	20		[redacted]	-	[redacted]	[redacted]	41%	14%	20%	27%	39%	OK		4,240.0	4,799.0		(3,824,470)		(3,824,470)					$	
				20	0	$	$ -	$		29%	9%	7%	36%	52%		DEFAULT	11,904.0	11,400.0	-	#########	-	#########	-	-	-	-	$	$ -

DEFAULT
DEFAULT
DEFAULT
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DEFAULT
DEFAULT
DEFAULT
DEFAULT

RETAIL RATES - USED FOR PAYBACK CALCULATION ONLY

ELECTRIC RETAIL RATE ($/kwh)	$ [redacted]	DEFAULT
GAS RETAIL RATE ($/therm)	$ [redacted]	DEFAULT
OIL RETAIL RATE ($/gal)		No default- use customer specific information
PROPANE RETAIL RATE ($/gal)		
WATER RETAIL RATE ($/gal)		

CHP Information	
Total Net CHP Nameplace kW	5000
CHP Energy Efficiency Incentive	
Custom Distribution Benefit	

RESULTS

NO.	MEASURE DESCRIPTION	INCLUDE IN PROJECT	BCR	ANNUAL MWH	LIFETIME MWH	LIFETIME MV-YEARS	UNITS (MA ONLY)	ANNUAL THERMS	LIFETIME THERMS	PAYBACK PERIOD (YEARS) - NO INCENTIVE ELEC ONLY	GAS ONLY	TOTAL	Eligible for Incentive Based on Payback: Result	Explanation
1	Combined Heat & Power - 20 Years	Y	4.89	62,927	1,258,545	153,060	1,411,625	(7,459,780)	(149,015,200)	2.14	-	(41.45)	N	Measure Fails Payback Criteria
2	Combined Heat & Power - 20 Years	Y	2.94	35,537	710,736	85,000	795,736	(3,824,470)	(76,489,400)	3.59	-	84.90	N	Measure Fails Payback Criteria
	TOTAL - Eligible for Incentive		-	-	-	-	-	-	-	**N/A**	**N/A**	**N/A**		
	TOTAL - Not Eligible for Incentive			98,464	1,969,283	238,060	2,207,363	(11,275,250)	(225,504,600)					

TOTAL PROJECT RESULTS

	PROJECT ELIGIBILITY	ELECTRIC BENEFITS (PERCENTAGE)	GAS BENEFITS (PERCENTAGE)
N	This project is ineligible for gas and/or electric incentives	100%	0%

Custom Screening Inputs and Screening Results
Printed on 9/11/2017

2016 Dual Fuel Custom Screening Tool - Final
Finalized on 1/22/16
2017 Dual Fuel Custom Screening Tool - RI CHP_v1_090817

Customer Name	Navy
Project Description	Multiple runs of projects Measure 1 is Base Option(55.9% OEE), Measure 2 is Option 1(not 51.0% OEE)
Existing or Base Case Condition Description	Normal Run
Proposed Description	7000 kW system with heat recovery

State	RI
Fuel Type	Electric
Program	Retrofit
Electric PA	National Grid Elec
Gas PA	National Grid Gas

PA Contact	Jed Ferris
Phone	4017947364
Application ID	
Project Type	New equipment for new process or expanded operation

CLEAR ALL INPUT DATA

Project Notes: Base option is running in Winter months only, 55.9% OEE. Option 1 is running a 7000 kw gas turbine and 2 MW condensing turbe all year round 51.0% OEE(does not pass PUC state minimum 55%)

MEASURE INFORMATION					COST DATA INPUTS			ANNUAL ELECTRIC INPUTS (PENALTIES AND INCREASED USAGE INDICATED BY (PARENTHESES))										ANNUAL GAS INPUTS (PENALTIES AND INCREASED USAGE INDICATED BY (PARENTHESES))				NON-ELECTRIC NON-GAS IMPACT INPUTS (PENALTIES AND INCREASED USAGE/DOLLARS INDICATED BY (PARENTHESES))						
								ENERGY						CAPACITY (kW)														
NO.	MEASURE DESCRIPTION		CODE	DEFAULT LIFE	OVERRIDE LIFE	Total Equipment Cost	Total Labor Cost	Total Cost	kWH SAVINGS	Annual % On Peak	Summer On Peak	Summer Off Peak	Winter On Peak	Winter Off Peak	CHECK		Summer Peak kW (ISO-NE)	Winter Peak kW (ISO-NE)	Heating Season (THERMS)	Year Round (THERMS)	Other (THERMS)	Total (THERMS)	Oil (MMBTU)	Propane (MMBTU)	Water (GALLONS)	Sewer (GALLONS)	Annual ($)	One-Time ($)
1	Combined Heat & Power - 20 Years	CLEAR LINE	CHP20	20		$ [redacted]	$ -	$ [redacted]	[redacted]	23%	0%	0%	41%	59%	OK	DEFAULT	-	8,650.0		(5,032,110)		(5,032,110)					$ [redacted]	
2	Combined Heat & Power - 20 Years	CLEAR LINE	CHP20	20		$ [redacted]	$ -	$ [redacted]	[redacted]	41%	14%	20%	27%	39%	OK		8,630.0	9,208.4		(7,415,610)		(7,415,610)					$ [redacted]	
				20	0	$ [redacted]	$ -	$ [redacted]	[redacted]	34%	9%	12%	33%	47%		DEFAULT	8,630.0	15,858.4	-	#########	-	#########	-	-	-	-	$ [redacted]	$ -
																DEFAULT												
																DEFAULT												
																DEFAULT												
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																DEFAULT												
																DEFAULT												
																DEFAULT												

RETAIL RATES - USED FOR PAYBACK CALCULATION ONLY

ELECTRIC RETAIL RATE ($/kwh)	$ [redacted]	DEFAULT
GAS RETAIL RATE ($/therm)	$ [redacted]	DEFAULT
OIL RETAIL RATE ($/gal)		No default- use customer specific information
PROPANE RETAIL RATE ($/gal)		
WATER RETAIL RATE ($/gal)		

CHP Information	
Total Net CHP Nameplace kW	7000
CHP Energy Efficiency Incentive	##########
Custom Distribution Benefit	

RESULTS												Eligible for Incentive Based on Payback	
NO.	MEASURE DESCRIPTION	INCLUDE IN PROJECT	BCR	ANNUAL MWH	LIFETIME MWH	LIFETIME MW-YEARS	UNITS (MA ONLY)	ANNUAL THERMS	LIFETIME THERMS	PAYBACK PERIOD (YEARS) - NO INCENTIVE ELEC ONLY	GAS ONLY	TOTAL	Result	Explanation
1	Combined Heat & Power - 20 Years	Y	(1.40)	42,740	854,807	-	854.807	(5,032,110)	(100,642,200)	3.15	-	(66.02)	N	Measure Fails Payback Criteria
2	Combined Heat & Power - 20 Years	Y	5.70	69,328	1,386,580	172.600	1,559.160	(7,415,610)	(148,312,200)	2.50	-	50.13	N	Measure Fails Payback Criteria
	TOTAL - Eligible for Incentive		-	-	-	-	-	-	-	**N/A**	**N/A**	**N/A**		
	TOTAL - Not Eligible for Incentive			112,068	2,241,387	172.600	2,413.967	(12,447,720)	(248,954,400)					

TOTAL PROJECT RESULTS			
	PROJECT ELIGIBILITY	ELECTRIC BENEFITS (PERCENTAGE)	GAS BENEFITS (PERCENTAGE)
N	This project is ineligible for gas and/or electric incentives	100%	0%

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/11/2017 3:22:07 PM
To: naveen kapur [naveenk@nkengineers.com]
CC: Jim Falsetti [jim.falsetti@bqenergy.com]; Greg Hester [greg.hester@ebdengineering.com]
Subject: RE: EXT || BCR analysis for Newport Naval Base

Sorry, just saw your latest, I think I got what I need.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Ferris, Gerald Jr
Sent: Monday, September 11, 2017 11:04 AM
To: 'naveen kapur'
Cc: Jim Falsetti; Greg Hester
Subject: RE: EXT || BCR analysis for Newport Naval Base

And maintenance cost yearly. Winter KW and Summer KW

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Monday, September 11, 2017 9:52 AM
To: Ferris, Gerald Jr
Cc: Jim Falsetti; Greg Hester
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed
There was a typo in Option 1 pricing. The correct amount is [redacted] Sorry about that
We will be sending you an updated option list with the Cap. Costs included shortly
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200

(C) 203-209-3884

From: naveen kapur <naveenk@nkengineers.com>
Date: Wednesday, August 30, 2017 at 12:22 PM
To: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Cc: Jim Falsetti <jim.falsetti@bqenergy.com>, Greg Hester <greg.hester@ebdengineering.com>
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed
Here are the cost estimates for the options, as stated in the attachment, that might work:
Base Option - [redacted]
Option 1 - [redacted]
Option 2 - [redacted]
Option 3 - [redacted]

Thanks Jed

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, August 29, 2017 at 8:22 AM
To: naveen kapur <naveenk@nkengineers.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Can you give me a high level cost? $3500/KW??? We are trying to bend our rules internally but it is hard to discuss particulars with the higher ups when I cannot give them a real BCR run.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Tuesday, August 29, 2017 8:04 AM
To: Jim Falsetti; Greg Hester; Ferris, Gerald Jr; Dunham, Jeffrey B.
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jim
Please see my earlier emails. I think this is an exercise in futility as we can't get past the first hurdle of efficiency. Also the Navy has ruled out the options with limited operation during the summer months. Not sure what the purpose of the BCR tool will be for all these options. If you still want to pursue it, we will need 3 weeks to estimate the costs of the options
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Tuesday, August 29, 2017 at 4:08 AM
To: Greg Hester <greg.hester@ebdengineering.com>, "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>, naveen <naveenk@nkengineers.com>, "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Jed and Jeff – the Navy has asked for the BCR results for each of these cases. Do you have them? If you could add a column called BCR results, that would be great. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, August 18, 2017 11:23 AM
To: Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Jim Falsetti <jim.falsetti@bqenergy.com>; naveen <naveenk@nkengineers.com>
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed,

Please see the attached. I added a column with average kW reductions. The model did include operation from 1-5 pm. Sorry for the confusion.

Naveen, can you provide your opinion on the additional cost for the 2 MW steam turbine that would be added to cases 5 & 7?

Thank you.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Friday, August 18, 2017 at 10:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen <naveenk@nkengineers.com>
Cc: Greg Hester <greg.hester@ebdengineering.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Few suggestions;

> The super peak times are 1-5pm not 4, I am hoping that is not a big deal.
>
> Can you return the coincidental average KW reduction during the 1-5PM M-F June, July and August. Three numbers.
>
> I need the cost for each option to enter into the spreadsheet.

I can talk this afternoon, Dinesh is away at a conference.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen
Cc: Greg Hester
Subject: EXT || BCR analysis for Newport Naval Base

Jed – we discussed the next steps with the Navy, and in the attached PDF there are seven cases. Cases 4-7 all meet the 55% hurdle with a comfortable design margin, and we would like to know if they meet the BCR hurdle.

Separately, we would like to discuss one more case with yourself and Dinesh.
Would you be available for a call later today? Best,

James Falsetti Phone/Text 203-512-7446
jim.falsetti@bqenergy.com www.bqenergy.com
BQ Energy llc
400 Market Industrial Park
Suite 32
Wappingers Falls, NY 12590

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You may report the matter by contacting us via our UK Contacts Page or our US Contacts Page (accessed by clicking on the appropriate link)

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For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

Appointment

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 9/18/2017 3:09:04 PM
To: Paine, Fred [fred.paine@nationalgrid.com]; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [john.reichert@navy.mil]; Sprague, James CIV NAVFAC MIDLANT, PWD Newport [james.sprague1@navy.mil]; Cournoyer, Raymond L CIV NAVFAC MIDLANT, PWD Newport [raymond.Cournoyer@navy.mil]; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [daniel.l.sullivan3@navy.mil]
Subject: Naval Station
Location: Newport
Start: 9/27/2017 2:00:00 PM
End: 9/27/2017 3:00:00 PM
Show Time As: Tentative
Required Attendees: Paine, Fred; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Sprague, James CIV NAVFAC MIDLANT, PWD Newport; 'Cournoyer, Raymond L CIV NAVFAC MIDLANT, PWD Newport'; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport

John can you forward to Steve Stringham

Meeting to review energy efficiency projects identified and also discuss status CHP , method of future incentive payment methods and review Gas projects

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/26/2017 4:13:55 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]
Subject: 2017 Dual Fuel Custom Screening Tool - RI CHP_v1_090817.xlsm
Attachments: 2017 Dual Fuel Custom Screening Tool - RI CHP_v1_090817.xlsm

I am in Res Woods can we talk about this Navy Project?

2017 Dual Fuel Custom Screenin...

Confidential Document Withheld from Production

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 9/29/2017 6:21:00 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
CC: Sevier, Mark [mark.sevier@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Patel, Dinesh [dinesh.patel@nationalgrid.com]
Subject: Re: Newport Navy CHP

Jed for clarification, is this still still short of screening ? Less than 1.

Sent from my iPhone

> On Sep 29, 2017, at 2:08 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:
>
> Okay folks. Comes down to; do we want this project in our portfolio for 2019 or not. Here is the current screening; with much appreciated help from Mark Sevier we have turned the BCR from a negative 2.64 into a positive 0.64.
>
> We need a onetime benefit of 6.5 million dollars under "resiliency" to get this to pass. Or we can go into the project as a whole and encapsulate the whole thing.
>
> Either way, I owe the Navy a response today about whether we are going to look closer and try to get it to pass or not?
>
> Help?
>
> Jed
>
> Gerald (Jed) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
>
> -----Original Message-----
> From: Sevier, Mark
> Sent: Friday, September 29, 2017 12:44 PM
> To: Henschel, Rachel; Ferris, Gerald Jr
> Subject: RE: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> Does the Navy plan to run the CHP to help manage power outages / is it big enough / will the CHP serve 'critical loads' panels and be set up to run during grid outages?
>
> IMO, a CHP and a back-up generator are different things, but I don't think many people will question the proposed NEI (though if Dinesh will end up involved in this, we should find out what he'll be say about it).
>
> Who will the incentive check be sent to? If the solar developer is installing the CHP as partial payment for leasing the Navy's land for the solar array, it sounds like the Navy doesn't have (m)any direct costs, and the solar developer probably already rolled the CHP cost into their solar project...IMO worth considering the story about why an incentive is needed, and who needs it, 'cuz from what I've heard so far, it doesn't sound good.
>
> Mark
>
> -----Original Message-----
> From: Henschel, Rachel
> Sent: Friday, September 29, 2017 11:42 AM
> To: Ferris, Gerald Jr
> Cc: Sevier, Mark
> Subject: RE: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> Jed -- Sorry I couldn't help more on this earlier -- this question is good to get the info from Navy.
>
> Mark -- I'm pretty sure National Security is an appropriate NEI. The 2017 plan says they are listed in the TRM - is that one there?
>
>

> -----Original Message-----
> From: Ferris, Gerald Jr
> Sent: Friday, September 29, 2017 11:31 AM
> To: Breckner, John K CIV NAVFAC MIDLANT, PW; Jim Falsetti; Dunham, Jeffrey B.; Paul Curran; naveen kapur; Dion, Thomas; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Paine, Fred; Afonso, Jacques R.; Pascual, Beth A CIV NAVFAC LANT, PW64; Sevier, Mark; Henschel, Rachel
> Subject: RE: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> This was very helpful in understanding the definition of resiliency from the NAVY's perspective.
>
> National Grid is looking to quantify an economic benefit to help pass our screening benefit/cost ratio test. I believe from reading this document that it might exist. On page 18 of 26; Item 3, section "a" you call out a methodology for determining cost impacts of outages documented in the "National Renewable Energy Laboratory" Study; in particular Section 5 of that study. Has this been quantified for the Newport Navy facility? If so, can we have that figure?
>
> Also on the same page 18 of 26 section 4; this study calls out micro grids, minimum existing resiliency requirements included for facility specific needs. Is this facility considered to be a microgrid chosen facility (Microgrid Design Guide, Ref g)? If so, can we review a copy of this guide as well? Again, our goal is to put a dollar value to the need for this facility to have a CHP/DG unit installed at the facility.
>
> This dollar value will lend itself to obtaining a passing screening test and National Grid will be allowed to participate as a partner on this project.
>
> Thanks
>
> Jed
>
> Gerald (Jed) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
>
> -----Original Message-----
> From: Breckner, John K CIV NAVFAC MIDLANT, PW [mailto:john.breckner@navy.mil]
> Sent: Wednesday, September 27, 2017 4:01 PM
> To: Jim Falsetti; Dunham, Jeffrey B.; Ferris, Gerald Jr; Paul Curran; naveen kapur; Dion, Thomas; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Paine, Fred; Afonso, Jacques R.; Pascual, Beth A CIV NAVFAC LANT, PW64
> Subject: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> Team,
>
> Please find attached the NAVFAC P-602 as a potential starting point for valuing energy reliability and resiliency related to a future CHP plant at Newport. You will see that this document supports the Deputy Assistant Secretary of the Navy's (DASN) Installation Energy Security Framework memo dated Jun 2017.
>
> As discussed earlier this week, this benefit would be in addition to the potential benefits of the associated 21 MW solar array. Thanks.
>
> R/John Breckner, PE, CEM
> NAVFAC Mid-Atlantic, PW8 Energy Management
> Renewable Energy Program Manager
> 9324 Virginia Avenue
> Building P-65, Room 112A
> Norfolk, VA 23511-3095
> Comm: 757.341.1185
> DSN: 341.1185
> Cell: 757.641.4374
>
>
> <2017 Dual Fuel Custom Screening Tool - RI CHP_v1_092717.xlsm>

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 9/29/2017 6:12:48 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
CC: Sevier, Mark [mark.sevier@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Patel, Dinesh [dinesh.patel@nationalgrid.com]
Subject: Re: Newport Navy CHP

Jed
Is any further explanation needed for the group on what makes up the resilience i.e. Solar

> On Sep 29, 2017, at 2:08 PM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:
>
> Okay folks. Comes down to; do we want this project in our portfolio for 2019 or not. Here is the current screening; with much appreciated help from Mark Sevier we have turned the BCR from a negative 2.64 into a positive 0.64.
>
> We need a onetime benefit of 6.5 million dollars under "resiliency" to get this to pass. Or we can go into the project as a whole and encapsulate the whole thing.
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> Either way, I owe the Navy a response today about whether we are going to look closer and try to get it to pass or not?
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> Help?
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> Jed
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> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
>
> -----Original Message-----
> From: Sevier, Mark
> Sent: Friday, September 29, 2017 12:44 PM
> To: Henschel, Rachel; Ferris, Gerald Jr
> Subject: RE: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> Does the Navy plan to run the CHP to help manage power outages / is it big enough / will the CHP serve 'critical loads' panels and be set up to run during grid outages?
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> Mark
>
> -----Original Message-----
> From: Henschel, Rachel
> Sent: Friday, September 29, 2017 11:42 AM
> To: Ferris, Gerald Jr
> Cc: Sevier, Mark
> Subject: RE: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> Jed -- Sorry I couldn't help more on this earlier -- this question is good to get the info from Navy.
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>
>
> -----Original Message-----

> From: Ferris, Gerald Jr
> Sent: Friday, September 29, 2017 11:31 AM
> To: Breckner, John K CIV NAVFAC MIDLANT, PW; Jim Falsetti; Dunham, Jeffrey B.; Paul Curran; naveen kapur; Dion, Thomas; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Paine, Fred; Afonso, Jacques R.; Pascual, Beth A CIV NAVFAC LANT, PW64; Sevier, Mark; Henschel, Rachel
> Subject: RE: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> This was very helpful in understanding the definition of resiliency from the NAVY's perspective.
>
> National Grid is looking to quantify an economic benefit to help pass our screening benefit/cost ratio test. I believe from reading this document that it might exist. On page 18 of 26; Item 3, section "a" you call out a methodology for determining cost impacts of outages documented in the "National Renewable Energy Laboratory" Study; in particular Section 5 of that study. Has this been quantified for the Newport Navy facility? If so, can we have that figure?
>
> Also on the same page 18 of 26 section 4; this study calls out micro grids, minimum existing resiliency requirements included for facility specific needs. Is this facility considered to be a microgrid chosen facility (Microgrid Design Guide, Ref g)? If so, can we review a copy of this guide as well? Again, our goal is to put a dollar value to the need for this facility to have a CHP/DG unit installed at the facility.
>
> This dollar value will lend itself to obtaining a passing screening test and National Grid will be allowed to participate as a partner on this project.
>
> Thanks
>
> Jed
>
> Gerald (Jed) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
>
> -----Original Message-----
> From: Breckner, John K CIV NAVFAC MIDLANT, PW [mailto:john.breckner@navy.mil]
> Sent: Wednesday, September 27, 2017 4:01 PM
> To: Jim Falsetti; Dunham, Jeffrey B.; Ferris, Gerald Jr; Paul Curran; naveen kapur; Dion, Thomas; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Paine, Fred; Afonso, Jacques R.; Pascual, Beth A CIV NAVFAC LANT, PW64
> Subject: EXT || NEWPORT CHP AND ENERGY SECURITY FRAMEWORK
>
> Team,
>
> Please find attached the NAVFAC P-602 as a potential starting point for valuing energy reliability and resiliency related to a future CHP plant at Newport. You will see that this document supports the Deputy Assistant Secretary of the Navy's (DASN) Installation Energy Security Framework memo dated Jun 2017.
>
> As discussed earlier this week, this benefit would be in addition to the potential benefits of the associated 21 MW solar array. Thanks.
>
> R/John Breckner, PE, CEM
> NAVFAC Mid-Atlantic, PW8 Energy Management
> Renewable Energy Program Manager
> 9324 Virginia Avenue
> Building P-65, Room 112A
> Norfolk, VA 23511-3095
> Comm: 757.341.1185
> DSN: 341.1185
> Cell: 757.641.4374
>
>
> <2017 Dual Fuel Custom Screening Tool - RI CHP_v1_092717.xlsm>

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 9/29/2017 2:07:45 PM
To: naveen kapur [naveenk@nkengineers.com]
Subject: RE: EXT || 7-17-17 Naval Station Newport Summary.pdf

This is what I was looking for information.
Not sure how we missed this when we originally asked. The BCR is run on the gas consumption minus the gas recovery.

Gerald (*Jed*) Ferris
NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Thursday, September 28, 2017 10:33 AM
To: Ferris, Gerald Jr
Subject: FW: EXT || 7-17-17 Naval Station Newport Summary.pdf

Jed
Please see the trailing email. Is this what you need?

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: Greg Hester <greg.hester@ebdengineering.com>
Date: Thursday, September 28, 2017 at 10:23 AM
To: naveen kapur <naveenk@nkengineers.com>
Subject: Re: EXT || 7-17-17 Naval Station Newport Summary.pdf

Hopefully the explanation below will be what Jed needs for his analysis.

The case that you just sent me was (I believe) the Taurus 70 case where we were only operating in the winter and part of the spring and fall.

We received steam flow data from the Navy. We used this data to develop hourly steam flow for the central boiler plant and then backed into boiler fuel consumption by taking the average hourly production of steam and multiplying by the enthalpy of the superheated steam less the enthalpy of the feedwater coming to the boiler. This equates to approximately 1,066 btu/lb. We then divided by 0.82 for boiler efficiency. So, for the numbers that you sent in the pdf just now:

Current annual steam load – 158,143 klb/year * 1000 lb/klb * (1253.9 Btu/lb – 188 Btu/lb) / 0.82 / 1,000,0000 Btu/MMBTU = 205,572 MMBTU of fuel input to boiler

The waste heat boiler and duct burner are estimated to produce approximately 128,767 klbs/year and 27,486 klb/year respectively. This would leave only 1,840 klbs/year to be produced by the existing boilers. If you take the 1,840 klbs and divide by the steam enthalpy and boiler efficiency you get the post CHP boiler input of 2,456 MMBTU shown in the summary sheet.

This version of the model does not assume that the Navy will keep the existing boilers on low fire to keep them warm. We would have to look at this during the next phase and if this is the planned approach would increase the post CHP gas usage a little.

The post CHP case gas usage would be ~533,730 MMBTU for the turbine and duct burner and ~2,456 MMBTU for the boilers. The waste heat provided directly from the exhaust of the turbine (not including the duct burner) would be approximately 128,767 klbs/year or given the enthalpy data above, ~137,253 MMBTU.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: naveen kapur <naveenk@nkengineers.com>
Date: Thursday, September 28, 2017 at 9:43 AM
To: Greg Hester <greg.hester@ebdengineering.com>
Subject: FW: EXT || 7-17-17 Naval Station Newport Summary.pdf

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Wednesday, September 27, 2017 at 10:45 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: naveen kapur <naveenk@nkengineers.com>, "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
Subject: RE: EXT || 7-17-17 Naval Station Newport Summary.pdf

Can you confirm:

Fuel Consumption = 5,337,300 therm usage including duct fire

Heat recovered = 128,767 klbs of steam at 1188 Btu's/lbs of steam = 1,529,751 therms out of boiler at 80% efficient = 1,912,190 therms offset.

Total fuel consumed = 5,337,300 – 1,912,190 = 3,425,110 therms consumed from situation of no CHP.

Please confirm this is the input to the CHP I needed.

Gerald (*Jed*) Ferris
NE CHP Project Manager
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401 450-9416 Cell
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From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Wednesday, September 27, 2017 8:09 AM
To: Ferris, Gerald Jr
Cc: naveen kapur; Dunham, Jeffrey B.
Subject: EXT || 7-17-17 Naval Station Newport Summary.pdf

Jed – here is the summary for our base case. The gas usage is for the duct burner and the GT. IUs this the information you were looking for? It excludes the 21 MW PV System that is associated with the project.

Best,
Jim

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You may report the matter by contacting us via our UK Contacts Page or our US Contacts Page (accessed by clicking on the appropriate link)

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For the registered information on the UK operating companies within the National Grid group please use the attached link: http://www.nationalgrid.com/corporate/legal/registeredoffices.htm

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 10/12/2017 5:36:17 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]; Sevier, Mark [mark.sevier@nationalgrid.com]
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

I thought we had a pretty unified front on how we were going to make the Lease payment work in the BCR model. Dinesh was on the fence but the three of us were convinced it was okay.(Tom, Mark S and I).

Can we go back to that path and still move forward? If the study has more benefits through the distribution items etc, then we don't have to set the precedence if we don't want to. At this point, we want everything to go to the next step. TA study, Impact Study and get all the real data fleshed out but unfortunately someone is going to really invest some money for the next step, I cannot backpedal and say sorry we cannot get your BCR to pass anymore unless something drastically changes from the figures they gave us or interconnection costs standpoint.

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NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Henschel, Rachel
Sent: Thursday, October 12, 2017 12:25 PM
To: Sevier, Mark
Cc: Ferris, Gerald Jr
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

It's not simple. We do need to get an estimate from them though and see if that's enough to go forward.

Jed – we see a lot of paths that this could work but we need time to make one of them work (and get all the numbers lined up). Since you're working with customer, what's your sense of best way to do this?

From: Sevier, Mark
Sent: Thursday, October 12, 2017 11:02 AM
To: Henschel, Rachel
Cc: Ferris, Gerald Jr
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

How likely is this to be simple? Interconnecting 7.5 MW of CHP and 21 MW of solar seems like it could involve months of study, and involve grid upgrades on it's own.

From: Henschel, Rachel
Sent: Thursday, October 12, 2017 10:57 AM
To: Sevier, Mark
Subject: FW: An unfortunate answer to Dinesh's question on the change in Navy BCR

If this sounds good to you, I'll email Ryan Constable to give him some background. He has a person (Caleb, maybe?) that he has assigned to RI SRP, I think that'll be your contact.

For regulatory, we need to talk to Tim Roughan to start with.

From: Henschel, Rachel
Sent: Thursday, October 12, 2017 10:55 AM
To: Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Mark,

Jeremy pointed out that CHP's larger than 1 MW need to consider location-specific distribution benefits. Can you please work with Ryan Constable's team to get an estimate that would update what the bc model has? Since the CHP will be on Aquidneck Island, the local benefits may be very different than the average system benefits in the screening model.

The 2017 plan states that this may entail a detailed engineering analysis, but for this initial screening an estimate will help indicate whether the CHP screens and/or if a detailed study is needed.

Because this CHP is part of a solar-CHP arrangement, it's also a good opportunity to talk with Regulatory and Distribution about how we address and screen this project using the Commission's principles from SIRI.

Jed – this will take time, will that be ok?

--Rachel

From: Coughlin, Thomas J. Jr.
Sent: Wednesday, October 11, 2017 9:58 PM
To: Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: An unfortunate answer to Dinesh's question on the change in Navy BCR

Agreed. Mark- we can work through this together.

Sent from my iPad

Tom Coughlin
Manager, Technical Strategy & Policy | **National Grid**
| Office (781.907.1582 |
| Cell (978.501.3689 | Fax Ê 315.477.7152 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

On Oct 11, 2017, at 9:31 PM, White, Carol S. (US-NBRO-RM) <Carol.S.White@nationalgrid.com> wrote:

A for effort.

Sent from my iPad

On Oct 11, 2017, at 6:41 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:

> After several iterations of modifying a somewhat unfamiliar tool (planning BC tool), I did not double check a value that wasn't there - the CHP negative O&M, which when corrected lowers the BC back below 1 (need more time to come to a final value). My apologies for this error, though hopefully not a major problem since it did not linger long.
>
> I maintain my position that it does not make sense to me that the EE programs might not be able to support a CHP project that is being partly supported by a solar installation through a non-simple barrier-removing financial transaction in a state where there is significant support for all three.
>
> Mark
>
> ---
>
> From: McAteer, Michael L.
>
> Sent: Wednesday, October 11, 2017 2:15 PM
>
> To: Sevier, Mark
>
> Cc: Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
>
> Subject: Re: Navy CHP BCR using RI 2018 plan BC model > 1
>
> Probably worth still discussing but very interesting insight with the new test
>
> Sent from my iPhone
>
> On Oct 11, 2017, at 2:09 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com<mailto:Mark.Sevier@nationalgrid.com>> wrote:
>
> Hi all –
>
> It occurred to me today that I could modify the CHP row in the 2018 plan BC model to assess the Navy CHP project under the 'new' RI test that includes updated avoided energy costs, an avoided cost for carbon, and a different $ value for economic benefit, before the 2018 C&I custom screening tool is created. Using the 'straightforward' BC inputs as we've been talking about:

I find the project to have a BCR of 1.5. The above project values will still need to be vetted, where significant differences could change the situation, but the 1.5 leaves a comfortable margin. Most likely, we will be in 2018 before we have vetted values, and the project would probably complete in 2019 at the earliest, so it seems reasonable to use the 2018 BC test values.

In light of this new information about the proposed Navy CHP BCR, I don't think we need to spend time this afternoon discussing the oddities related to the project's financial situation. Let me know if you'd still like to get together to discuss this new information.

Thanks,

Mark

-----Original Appointment-----

From: Coughlin, Thomas J. Jr.

Sent: Tuesday, October 10, 2017 5:07 PM

To: Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Sevier, Mark; Henschel, Rachel

Subject: Tom Coughlin is your host

When: Wednesday, October 11, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Meeting to discuss Naval Station Newport CHP proposal

Its going to be difficult to get us all together .Carol, Mark and Jed have conflicts in their calendars during this time slot. If you can break away from your meetings, great! If not, I can schedule for another time.

-- Do not delete or change any of the following text. --

Join me now in my WebEx Personal Room.

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Join by phone

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Access code: 592 764 622

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 10/13/2017 1:49:27 PM
To: Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Oooh I like that idea

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Coughlin, Thomas J. Jr.
Sent: Friday, October 13, 2017 9:34 AM
To: McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

From Rachel's e-mail, it seems we need to develop a new internal capability along with the process to handle projects like this.

Currently, evaluation's review is not included in our project task hierarchy but could be added. I know I'm jumping ahead, but I recommend a new specialist, perhaps reporting to Rachel, that would work through projects like this. So, similar to Stephan's or Kevin Roses roles.

Tom Coughlin
Manager, Technical Policy | **National Grid**
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| Cell ☎ 978.501.3689 | Fax 🖷 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

From: McAteer, Michael L.
Sent: Thursday, October 12, 2017 4:05 PM
To: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

I agree with Carol especially when this approach becomes precedent setting . We should all feel confident that the b/c test we are using is consistent with criteria and that when it deviates as we can see with the evolution of our business that we note that deviation clearly (ie Carbon or other additional benefits)

This will avoid us making commitments to customers that we will have to overturn once a deeper evaluation is conducted . To Carols point about process is there a method we can use that ensures an evaluation person is brought in during the application review before sign –off on customer commitment to a transaction . In this case we benefited from Mark's insight and contributions and were covered but this is not always the case unless I am mistaken. - M

From: White, Carol S. (US-NBRO-RM)
Sent: Thursday, October 12, 2017 12:01 PM
To: Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Personally, I don't think this type of decision should be made via a popular vote. I think we need to ensure that we have an appropriate process in place that is applicable to all of these projects and that can be defended as being consistent with state requirements and customer equity concerns.

Can we create a comprehensive list of the costs and benefits that should be included in the b/c assessment? And can we document a reasonable estimate of the savings that will be realized on the grid? It's possible that those savings will be 0 and also possible that the other benefits reflect value in excess of costs, right?

Carol S. White
Director, Program Operations
National Grid
40 Sylvan Road
Waltham, MA 02451
Phone: 781-907-1566
Cell: 508-212-7508
carol.s.white@nationalgrid.com

From: Sevier, Mark
Sent: Thursday, October 12, 2017 11:24 AM
To: Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

It seems to me given the current state of information Dinesh makes the call not to do the project and I make the call to do the project; perhaps more important people can take a position as a vote and we go down that path no matter where it leads.

Keep in mind that officially the C&I retrofit program needs to be cost effective, so even if we can't find a way to show a Navy CHP project to be cost effective, the net effect on the C&I retrofit program will be small, and the program will almost certainly still be cost effective.

Veolia went on for months beyond this state, so most likely we aren't going to get 'quick and certain' answers that work well for the customer's timeline, and stringing them along is going to make saying 'no' later more and more difficult.

Mark

From: Ferris, Gerald Jr
Sent: Thursday, October 12, 2017 11:07 AM
To: Henschel, Rachel; Coughlin, Thomas J. Jr.; Sevier, Mark

Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

The Navy needed an answer yesterday. Unfortunately, I told them we were all set after our call yesterday afternoon I did tell them they needed to provide some documentation on the agreements between the Navy and Installer. I did not have the heart to tell them that miraculously it screened now which turned out to be a good thing.

Are we not comfortable that we can get it to pass the BCR as Dinesh, Tom and Mark S and I discussed two days ago about using the Lease payment in the NEB's section? I understand we would like to not use that if we could but can we at least let the Navy move forward and by the time the TA study is complete we will have two possible solutions to the BCR dilemma. Lease payment option or distribution benefits?

Do we need another call?

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

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Sent: Thursday, October 12, 2017 10:55 AM
To: Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Mark,

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Jed – this will take time, will that be ok?

--Rachel

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Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: An unfortunate answer to Dinesh's question on the change in Navy BCR

Agreed. Mark- we can work through this together.

Sent from my iPad

Tom Coughlin
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On Oct 11, 2017, at 9:31 PM, White, Carol S. (US-NBRO-RM) <Carol.S.White@nationalgrid.com> wrote:

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> > Probably worth still discussing but very interesting insight with the new test
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Hi all –

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$17.5M project cost,

42.74 GWh/yr of winter savings (46% on peak / 54% off peak),

0 summer kWh,

0 summer kW, 6,750 winter kW,

-3,281,580 therms/yr of gas NEI, and

-$687,500/yr O&M cost

I find the project to have a BCR of 1.5. The above project values will still need to be vetted, where significant differences could change the situation, but the 1.5 leaves a comfortable margin. Most likely, we will be in 2018 before we have vetted values, and the project would probably complete in 2019 at the earliest, so it seems reasonable to use the 2018 BC test values.

In light of this new information about the proposed Navy CHP BCR, I don't think we need to spend time this afternoon discussing the oddities related to the project's financial situation. Let me know if you'd still like to get together to discuss this new information.

Thanks,

Mark

-----Original Appointment-----

From: Coughlin, Thomas J. Jr.

Sent: Tuesday, October 10, 2017 5:07 PM

To: Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Sevier, Mark; Henschel, Rachel

Subject: Tom Coughlin is your host

When: Wednesday, October 11, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Meeting to discuss Naval Station Newport CHP proposal

Its going to be difficult to get us all together .Carol, Mark and Jed have conflicts in their calendars during this time slot. If you can break away from your meetings, great! If not, I can schedule for another time.

-- Do not delete or change any of the following text. --

Join me now in my WebEx Personal Room.

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/13/2017 3:12:22 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Navy CHP
Attachments: REF B NAVFAC ESF Cover Memo - P-602_3 Pillars of Energy Security.pdf

Flag: Follow up

Here's what I came up with...

You may not have considered this, but I, too, would prefer to have all the proper information / inputs and process, but in complex situations that isn't always realistic, in this case for reasons that are at least partly self-inflicted by NGrid by needing uncommon, currently unavailable information that will realistically take months to collect and consider, if past projects are any indication. Wouldn't Terry ask us to consider the customer's perspective: if we were in the customer's shoes, how would we manage the uncertainty, in light of NGrid not being able to decide about the total project?

Hence my request to take a stand given what we know at this point: a ~7MW CHP delivering ~42 GWh/yr during non-summer for an apparent customer 'in-kind cost' that is below typical due to combination with a PV project. My estimate is that the PV array will cost ~$50M and deliver another ~24 GWh/yr (and ~7 peak MW) primarily in summer to the local grid (local electrons, financial arrangements might differ), for a net project that reduces local electric grid loads by over 60 GWh/yr. Without having all the details, from a big picture perspective the upside potential looks much much larger than the downside risk to me. The upside potential is Terry and Tim Horan, retired military, at the ribbon cutting delivering what amounts to a large incentive check to the Navy for a CHP that helps them meet their NAVFAC reliability, resiliency, and EE directives (attached), in a project combined with a large PV array, where the total project displaces over 60 GWh/yr to more efficient / renewable energy sources. The main downside risk is that the PV electricity is being sold at an especially high price, that unduly burdens ratepayers (not the 'typical' rate, since that option is available to everyone who isn't using proceeds to pay down a Navy CHP); I think the downside risk is an unlikely situation, given the competition in PV at this point. IMO, in the absence of clear and complete information, we need to think beyond the simple BC test 'rules' that weren't designed to consider what we're looking at with the Navy's EE/RE project - notably, a type of 'SolarWise' combination project.

I think we could look at most very large projects and see that they each had their special circumstances; while it would be great to find another combination 7 MW CHP + 21 MW PV project with a federal entity that can't deal with an incentive check, realistically I think we're talking about a 1-off project here. In any case, I wouldn't see calling this a precedent at this point in the discussion, since it is easy to see this is a special situation that is unlikely to exactly repeat itself.

Mark

From: McAteer, Michael L.
Sent: Thursday, October 12, 2017 4:04 PM
To: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

I agree with Carol especially when this approach becomes precedent setting . We should all feel confident that the b/c test we are using is consistent with criteria and that when it deviates as we can see with the evolution of our business that we note that deviation clearly (ie Carbon or other additional benefits)

This will avoid us making commitments to customers that we will have to overturn once a deeper evaluation is conducted . To Carols point about process is there a method we can use that ensures an evaluation person is brought in during the application review before sign -off on customer commitment to a transaction . In this case we benefited from Mark' s insight and contributions and were covered but this is not always the case unless I am mistaken. - M

From: White, Carol S. (US-NBRO-RM)
Sent: Thursday, October 12, 2017 12:01 PM
To: Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Personally, I don' t think this type of decision should be made via a popular vote. I think we need to ensure that we have an appropriate process in place that is applicable to all of these projects and that can be defended as being consistent with state requirements and customer equity concerns.

Can we create a comprehensive list of the costs and benefits that should be included in the b/c assessment? And can we document a reasonable estimate of the savings that will be realized on the grid?

It' s possible that those savings will be 0 and also possible that the other benefits reflect value in excess of costs, right?

Carol S. White
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Cell: 508-212-7508
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From: Sevier, Mark
Sent: Thursday, October 12, 2017 11:24 AM
To: Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

It seems to me given the current state of information Dinesh makes the call not to do the project and I make the call to do the project; perhaps more important people can take a position as a vote and we go down that path no matter where it leads.

Keep in mind that officially the C&I retrofit program needs to be cost effective, so even if we can' t find a way to show a Navy CHP project to be cost effective, the net effect on the C&I retrofit program will be small, and the program will almost certainly still be cost effective.

Veolia went on for months beyond this state, so most likely we aren' t going to get 'quick and certain' answers that work well for the customer' s timeline, and stringing them along is going to make saying 'no ' later more and more difficult.

Mark

From: Ferris, Gerald Jr
Sent: Thursday, October 12, 2017 11:07 AM
To: Henschel, Rachel; Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

The Navy needed an answer yesterday. Unfortunately, I told them we were all set after our call yesterday afternoon I did tell them they needed to provide some documentation on the agreements between the Navy and Installer. I did not have the heart to tell them that miraculously it screened now which turned out to be a good thing.

Are we not comfortable that we can get it to pass the BCR as Dinesh, Tom and Mark S and I discussed two days ago about using the Lease payment in the NEB' s section? I understand we would like to not use that if we could but can we at least let the Navy move forward and by the time the TA study is complete we will have two possible solutions to the BCR dilemma. Lease payment option or distribution benefits?

Do we need another call?

Jed

Gerald (Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com<mailto:Gerald.ferris@nationalgrid.com>

From: Henschel, Rachel
Sent: Thursday, October 12, 2017 10:55 AM
To: Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Mark,

Jeremy pointed out that CHP' s larger than 1 MW need to consider location-specific distribution benefits. Can you please work with Ryan Constable' s team to get an estimate that would update what the bc model has? Since the CHP will be on Aquidneck Island, the local benefits may be very different than the average system benefits in the screening model.

The 2017 plan states that this may entail a detailed engineering analysis, but for this initial screening an estimate will help indicate whether the CHP screens and/or if a detailed study is needed.

Because this CHP is part of a solar-CHP arrangement, it' s also a good opportunity to talk with Regulatory and Distribution about how we address and screen this project using the Commission' s principles from SIRI.

Jed - this will take time, will that be ok?

--Rachel

From: Coughlin, Thomas J. Jr.
Sent: Wednesday, October 11, 2017 9:58 PM
To: Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: An unfortunate answer to Dinesh's question on the change in Navy BCR

Agreed. Mark- we can work through this together.

Sent from my iPad

Tom Coughlin
Manager, Technical Strategy & Policy | National Grid
| Office (781.907.1582<tel:781.907.1582> |
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thomas.coughlin@nationalgrid.com<mailto:thomas.coughlin@nationalgrid.com>
www.nationalgrid.com<http://www.nationalgrid.com/>
Please consider the environment before printing this e-mail

On Oct 11, 2017, at 9:31 PM, White, Carol S. (US-NBRO-RM) <Carol.S.White@nationalgrid.com<mailto:Carol.S.White@nationalgrid.com>> wrote:
A for effort.

Sent from my iPad
On Oct 11, 2017, at 6:41 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com<mailto:Mark.Sevier@nationalgrid.com>> wrote:

After several iterations of modifying a somewhat unfamiliar tool (planning BC tool), I did not double check a value that wasn't there - the CHP negative O&M, which when corrected lowers the BC back below 1 (need more time to come to a final value). My apologies for this error, though hopefully not a major problem since it did not linger long.

I maintain my position that it does not make sense to me that the EE programs might not be able to support a CHP project that is being partly supported by a solar installation through a non-simple barrier-removing financial transaction in a state where there is significant support for all three.

Mark

From: McAteer, Michael L.
Sent: Wednesday, October 11, 2017 2:15 PM
To: Sevier, Mark
Cc: Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: Navy CHP BCR using RI 2018 plan BC model > 1

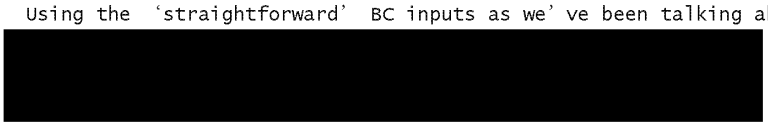
Probably worth still discussing but very interesting insight with the new test

Sent from my iPhone

On Oct 11, 2017, at 2:09 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com<mailto:Mark.Sevier@nationalgrid.com><mailto:Mark.Sevier@nationalgrid.com>> wrote:

Hi all -

It occurred to me today that I could modify the CHP row in the 2018 plan BC model to assess the Navy CHP project under the 'new' RI test that includes updated avoided energy costs, an avoided cost for carbon, and a different $ value for economic benefit, before the 2018 C&I custom screening tool is created. Using the 'straightforward' BC inputs as we' ve been talking about:



[redacted]

I find the project to have a BCR of 1.5. The above project values will still need to be vetted, where significant differences could change the situation, but the 1.5 leaves a comfortable margin. Most likely, we will be in 2018 before we have vetted values, and the project would probably complete in 2019 at the earliest, so it seems reasonable to use the 2018 BC test values.

In light of this new information about the proposed Navy CHP BCR, I don't think we need to spend time this afternoon discussing the oddities related to the project's financial situation. Let me know if you 'd still like to get together to discuss this new information.

Thanks,
Mark

-----Original Appointment-----
From: Coughlin, Thomas J. Jr.
Sent: Tuesday, October 10, 2017 5:07 PM
To: Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Sevier, Mark; Henschel, Rachel
Subject: Tom Coughlin is your host
When: Wednesday, October 11, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Meeting to discuss Naval Station Newport CHP proposal

Its going to be difficult to get us all together .Carol, Mark and Jed have conflicts in their calendars during this time slot. If you can break away from your meetings, great! If not, I can schedule for another time.

-- Do not delete or change any of the following text. --

Join me now in my WebEx Personal Room.

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11300
Ser 00/i33
JUL 13 2017

From: Commander, Naval Facilities Engineer Command (NAVFAC)
To: Deputy Chief of Naval Operations (Readiness and Logistics)
Deputy Commandant of the Marine Corps (Installations & Logistics)

Subj: INSTALLATION ENERGY SECURITY FRAMEWORK

Ref: (a) Installation Energy Security Framework Memo, DASN (Energy, Installations and Environment), of June 7, 2017

Encl: (1) P-602, "3-Pillars of Energy Security (Reliability, Resiliency, and Efficiency)" of June 2017

1. Per reference (a), Naval Facilities Engineering Command (NAVFAC) has developed enclosure (1) to address reliability, resiliency, and efficiency benchmarks.

2. Enclosure (1) forms the new basis for standardized energy security performance benchmarks across the Department of the Navy. Additionally, it includes definitions, best practices and has the capability to holistically measure an installation's energy efficiency performance and program. This guidance provides basic principles for planning, evaluating, and measuring energy security. Enclosure (1) includes:

a. Reliability benchmarks - Service disruption frequency and duration measurements with best practices comprised of utility infrastructure risk assessments, preventive maintenance improvements, and Master Plans incorporating strategic utility investments.

b. Resiliency benchmarks - Design standards for redundancy, uninterruptible power, and storage requirements with best practices that include partnering with commercial utility providers, increasing microgrids, and leveraging technology to improve resiliency.

c. Efficiency benchmarks - Energy data management and analytics, diverse energy projects across funding streams, and integration of IT systems to enhance capabilities with best practices covering third-party financing, operating cost savings, and distributed generation.

3. Enclosure (1) also establishes utility performance standards, measurement standards, and planning methods to enable NAVFAC's Utility Mission Integration Group and Commander Navy Installations Command and Marine Corps Installation Command energy project prioritization processes to optimize project selection based on highest energy security risk and reward.

4. Per reference (a), enclosure (1) should be used to conduct a gap analysis and prioritize requirements.

Subj: INSTALLATION ENERGY SECURITY FRAMEWORK

5. Our point of contact is Michael Savena, Utility Management Operations, (202)685-0444, michael.savena@navy.mil.

JENNIFER LATORRE
Executive Director

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NAVFAC
Naval Facilities Engineering Command

P-602
3 Pillars of Energy Security
(Reliability, Resiliency, & Efficiency)
June 2017

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Version History

Version#	Implemented By	Revision Date	Approved By	Date	Reason for Change
1.0	NAVFAC HQ				

Preface

1. Department of Navy (DON) facilities and utilities personnel at all levels need a consistent understanding of energy systems, standards of energy system operations, terminology, and methods for utility project development in order to effectively optimize the DON program for energy security. Planning methods must provide holistic consideration for system reliability, resiliency, and efficiency to ensure a common operating framework and mission focused solutions. The Chief of Naval Operations identified energy security as a strategic imperative, stating that "shore energy security is the mitigation of vulnerabilities related to the electrical grid." (Ref. a). The U.S. Marine Corps Assistant Deputy Commandant noted that "Success will require …Energy Security solutions that mitigate the effects of supply disruptions on mission essential functions." (Ref. b)

2. Purpose and Scope. The purpose of this guide is to provide:

a. Guidelines for evaluating and measuring energy security and,

b. Best practices for utility system management.

The guidelines and best practices are intended to assist in identification of Energy Security gaps, which, if resolved, can contribute to mission assurance. Projects to address these gaps should be identified and may be pursued based on life cycle cost effectiveness or to the ability to mitigate unacceptable risks from the lack of reliability or resiliency. Considering resource limitations, the guidelines and best practices take into consideration life cycle costs, cost/benefit analysis, and risk mitigation associated with addressing energy security gaps.

Security of electric energy is the primary focus of this guide. However, similar security principles apply to other energy-related commodities, such as water, natural gas, propane, liquid fuels, steam, and availability of renewable energy.

3. Energy Security Guidelines. Per 10 USC § 2924(Ref. c), Energy Security is defined as having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements. As shown in Figure 1, reliability, resiliency, and efficiency form the Three Pillars of Energy Security.

Figure 1

Planners should consider the three pillars when evaluating electrical and other utility system performance." Make this the last sentence of the previous paragraph, and delete the rest of the current, proposed paragraph.

4. Priorities and Funding. Energy reliability and resilience are desirable, but not all facilities require high levels of reliability and resilience. Priorities for reliability and resiliency are the energy security gaps identified during mission assurance evaluations. Resources available for closing energy security gaps include: Sustainment, Restoration, and Modernization (SRM) funds, Conservation Investment Program (ERCIP) funds, and Military Construction (MILCON) funds. Planners can also consider third-party financing opportunities, such as Energy Savings Performance Contracts (ESPC), Utility Energy Service Contracts (UESC), Power Purchase Agreements (PPA), Enhanced Use Leases (EUL), and Utility Privatization (UP), where applicable.

Due to expected future improvements in energy system technology and potential refinements in policy, this guide is issued as version 1.0. As energy technology and policy evolves, this guide will also go through iterative modernization.

R. David Curfman

R. D. Curfman, P.E.
Assistant Commander for
Public Works

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p. DODI 4170.11, Installation Energy Management, Change 1 Effective March 16, 2016
q. UFC_3_550_07 OPERATION AND MAINTENANCE EXTERIOR POWER DISTRIBUTION SYSTEMS 2017-01-19 OMT
r. BMS B-5.2.11 Utility Strategic Investment Plan
s. SECNAV Memo - Bundling of Energy Conservation Measures and Related Improvements Under Energy Savings Contracts and Utility Energy Service Contracts, 17 Jan 17

Section 1 Definitions

- ***Energy Security Definition***

  Energy Security is defined as having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements. (Ref. c)

- ***Reliability Definitions***

  1. **Reliability** is the percentage of time energy delivery systems (utilities) can serve customers at acceptable regulatory standards. Reliability can be measured by the frequency and duration of service disruptions to customers. The value of reliability depends upon the magnitude of adverse effects an outage has on customers. Reliability is determined by the adequacy, security, and quality of two primary elements: supply (e.g. generation availability) and delivery. For example, Electric outages occur when critical control parameters for electricity fall outside allowable ranges for voltage, current, and frequency. Key attributes of a reliable electrical transmission and distribution system include:

     a. System is monitored and controlled to stay within acceptable limits during normal conditions.

     b. System controls limit the impact and scope of instability and cascading faults when outages occur.

     c. System operations can be restored promptly if power is lost.

     d. System is maintained and tested regularly per current industry standards.

  2. **Energy Route Diversity** is the number of delivery pathways a form of energy can use, such as electrical feeds, natural gas pipelines, and fuel delivery trucks. A singular pathway anywhere in route to the customer, i.e. the military installation, represents a vulnerability and risk to mission. This vulnerability is referred to as a Single Point of Failure (SPF) and should be considered in discussions with utility providers and/or mitigated where possible through route diversification and ensuring that multiple feeds are available through the commercial provider.

  3. **A utility interruption** is an unplanned or planned loss of utility service to one or more customers resulting from one or more outages on the distribution system for more than five minutes. Outages, excluding planned outages, are those detected at a customer's meter from any commercial or installation cause. If

commercial power is lost, yet facilities continue to provide power to a certain customer's meter (e.g. dropping non-essential loads and continuing to run co-generation), that event is not considered an outage for customers that continue to have sustained power.

- ***Resiliency Definitions***

1. **Resiliency** is the ability of a system to anticipate, resist, absorb, respond, adapt, and recover from a disturbance. Threats that may cause a disturbance include weather events, accidents, geo-magnetic storms, terrorism (Ref. d), fire, cyber-attack, and the effects of climate change e.g. sea level rise (Ref. e). Energy resiliency will ensure DON installations have the ability to both prepare for and recover from utility interruptions that impact mission assurance on installations.

2. **Contingency Outage Study** is a form of risk assessment unique to electrical systems that involves the deliberate modeling of the effects of the failure of each component of the system in terms of capacity and load support. Both component failure as well as corridor disruption are modeled (e.g. a truck takes down a pole with two circuits on it). Plans should be developed to accommodate the largest single contingency outage. Supporting Infrastructure for Critical Assets (SICA) should be reviewed at least one node beyond the fence line (Ref. f).

3. **DON installation microgrid** is an integrated electrical energy system consisting of multiple interconnected loads and distributed energy resources, which act as an integrated system controlled from a central location (see Appendix A). Microgrids normally operate connected to and are synchronous with the traditional centralized grid but can disconnect and function autonomously as physical and/or economic conditions dictate. NAVFAC P-601 Microgrid Design Guide (Ref. g) provides DON installations with a basic understanding of microgrid technology and a common methodology to identify requirements and develop conceptual designs. Key components of a microgrid are sensors and controls that provide the ability to rapidly reconfigure an electric distribution system to operate differently, with one or more of the following objectives:

   a. Isolate damaged distribution line segments and possibly back-feed loads downstream from the damage.

   b. Optimize the balance of distributed generation, renewable energy, and grid supplies for economic or other reasons.

   c. Prioritize loads to be served by constrained or curtailed sources of power.

4. **Fuel switching** is the ability to meet energy requirements using more than one fuel such as an electric generator that can run on natural gas or diesel fuel.

5. **"Islanding" capacity** is the number of hours or days critical energy needs can be met from resources internal to the installation such as stored or renewable energy sources when an installation is separated (disconnected) for any reason from the grid.

6. **Mission Critical Facilities** are designated from analysis of all threats and hazards, facility vulnerabilities, and importance to mission success or failure. Multiple commands or organizations may identify facilities as critical based on differing policy or requirements. The Mission Assurance (MA) Assessment program will identify Task Critical Assets (TCAs) which are assets termed critical from a DoD perspective. During MA assessments, Supporting Infrastructure for Critical Assets (SICA) will also be identified. Installation level organizations may identify facilities as critical/essential for local and/or DON missions. The Installation Commanding Officer (ICO) assesses facility or asset priorities, as this is a prerequisite for annual Continuity of Operations Plan (COOP) reviews. Table 2, Electrical Resiliency Requirements by Category Code, provides some criteria for identification of critical facilities, but the selected approach should be approved by the installation ICO.

7. **Mutual Aid** is a contingency plan in partnership with local utilities for obtaining temporary emergency services, replacements for critical equipment or work force resources to aid in restoration.

8. **Redundancy** or **Redundant Systems** refer to systems or sub-systems that mitigate vulnerabilities to Single Points of Failure (SPF).

9. **Restoration Priority** is the priority given to the repair and re-energizing of electric system components following a fault or failure. Commercial utilities are federally required to assign restoration and load shedding priorities to their facilities, including those that serve DON Installations. Advanced Metering Infrastructure (AMI) metering, microgrids, distribution automation, and facility energy management systems are all technologies being deployed within an installation to assure system resiliency through monitoring and rapid restoration (Ref. h).

- ***Efficiency Definitions***

1. **Efficiency** is the use of the minimal energy required to achieve the desired level of service. Aging infrastructure, outdated equipment, poor maintenance, and lack of awareness contribute to inefficiency.

2. **Covered facilities** per EISA 2007 (Ref. i) are federal facilities, including central utility plants and distribution systems and other energy intensive operations, that constitute at least 75% of facility energy use. The DON definition follows the DUERS Guidance (Ref. j) which clarifies covered facilities as 'DUERS Goal Subject Facilities (iNFADS infrastructure), enclosed, portable or re-locatable structures serviced by utilities.

3. **Curtailment, load shedding demand response, and interruptible utility commodity service agreements** allow for the ability to reduce the demand for a specific source of energy when requested. Many commercial suppliers provide economic incentives for coordinating types of agreements.

4. **Distributed Energy Resources (DER)** are resources that can be operated in parallel (or in synch) with commercial power or that can be operated synchronously with all assets online during an islanding event. Note that some forms of emergency generation do not fit this definition. These systems may not be designed to run for long periods (as opposed to units that are "continuous" or "primary power" rated), may not have appropriately rated or configured switchgear to synchronize to a grid, or may not have environmental ratings to allow long run times (such as a "Tier 3" or "Tier 4" EPA designation).

5. **Renewable energy goals** are based on the percentage of energy derived from renewable (or alternative) sources of energy. Renewable energy resources contribute to energy supply diversification and can extend the hours of operation from other forms of fuel storage.

6. **Smart Grid** is a cyber-secure integration of distribution system automation, system control and data acquisition (SCADA), building energy management and control systems, and AMI. It is a mechanism to optimize the use of equipment and facilities to better manage cost and resources.

Section 2 Performance Criteria – Reliability, Resiliency, and Efficiency

The DON recommends the following integrated performance criteria for reliability, resiliency, and efficiency:

Reliability

1. For utility reliability, DON shall employ the Institute of Electrical and Electronic Engineers (IEEE) Standard IEEE 1366 Guide for Electric Power Distribution Reliability Indices (Ref. k). Metrics for reliability of the electric system can be measured by tracking the duration and frequency of electrical outages. The indices include IEEE 1366 System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), and Availability. SAIDI, SAIFI, and Availability are universally accepted terms commonly used as reliability indicators by electric power utilities.

   a. SAIDI: The System Average Interruption Duration Index is the yearly average outage duration for each customer (Building, Pier, and Facility) served. SAIDI is calculated as the total number of customer outage minutes per year divided by the total number of customers served in a defined area. The units of measure are minutes/year.
      Example PWD Norfolk FY16
      SAIDI = Sum of customer outage durations (min) / Sum of Customers
      SAIDI = 370,221 customer minutes / 920 customers
      SAIDI = 402 [System Average Outage Duration (minutes/year)]

   b. SAIFI: The System Average Interruption Frequency Index is the yearly average number of interruption occurrences that a customer (Building, Pier, or Facility) experienced. SAIFI is calculated as the total number of customer interruptions divided by the total number of customers served in a defined area. The units of measure are outage occurrences/year.
      Example PWD Norfolk FY16
      SAIFI = Sum of customer outages / Sum of Customers
      SAIFI = 816 customer outages / 920 customers
      SAIFI = 0.89 [System Average Outage Frequency (outage occurrences/year)]

   c. Availability: The total percentage of time that customers had electricity.
      Example from PWD Norfolk FY16 data
      Availability = 1 – (SAIDI / total minutes per year)
      Availability = 1 – (402 minutes / 525,600 minutes)
      Availability = 0.999234 = 99.923%

d. The SAIDI, SAIFI, and Availability values provided in Table 1, Electrical Reliability Benchmark Criteria, for grid reliability are benchmark criteria to assess current system performance and identify the potential requirement for additional measures to improve reliability.

Table 1
Electrical Reliability Benchmark Criteria

Recommended Levels of Service			
Installation Type	SAIDI (Average outage duration in minutes per year)	SAIFI (Average interruption frequency of occurrence per year)	Availability (% of time utility is operable)
Naval Shipyards	60	1	99.9886%
Other Installations	120	2	99.9772%

Resiliency

1. Existing DON resiliency requirements for mission critical and mission essential facilities are summarized in Table 2, Electrical Resiliency Requirements by Category Code (CATCODE). The requirements are itemized by CATCODE and address minimum design standards for redundancy, uninterruptible power requirements, and storage requirements for islanding from commercial power.

Table 2
Electrical Resiliency Requirements by Category Code

UFC Source	Category Code	Facility Type	Redundancy Requirements	Uninterruptable Power Requirements	Fuel Storage Requirement
UFC 3-540-01	12330	Vehicle and Equipment Ready Fuel Storage	Emergency Generator	None	UFC Minimum
UFC 3-540-01	13120	Communications Relay Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13122	VHF/UHF Communications Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13135	Receiver Building	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13140	Telephone Exchange Building	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13150	Transmitter Building	Emergency Generator	UPS Required for communication	UFC Minimum

				equipment	
UFC 3-540-01	13372	Military Terminal Radar Approach Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13373	Fleet Area Control Surveillance Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13375	Air Surveillance Radar Facility	Emergency Generator	None	Provide fuel storage capacity for 24 hours of continuous generator operation.
UFC 3-540-01	14365	Operations Control Center	N+1 (Emergency Generator)	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	14380	Command, Control, Communication, Computers and Intelligence Facility (C4I)	N+1 (Emergency Generator)	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	51010	Hospital	N+1 (Emergency Generator)	UPS Requirements - See NFPA 110	Fuel Storage Requirements - NFPA 110
UFC 4-133-01N	13373/ 13372	Aviation Operation and Support Facilities	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-230-03	84110	Potable Treatment Facilities	Emergency Generator	UPS Required for control equipment	UFC Minimum
UFC 3-230-03	83110	Waste Water Treatment Facilities	Emergency Generator	UPS Required for control equipment	UFC Minimum
UFC 4-150-02	N/A	Dockside Utilities for Ship Service	Emergency Generator	None	UFC Minimum
UFC 4-722-01N	72235	USN and USMC Dining Facilities	(See UFC for Specific Requirements)	None	72 hours Storage (Mass Care Facility)
UFC 4-730-04AN	73020	Military Police Facilities	(See UFC for Specific Requirements)	UPS Required for special service equipment	See comments
UFC 4-730-10	73010	Fire Stations	(See UFC for Specific Requirements)	None	UFC Minimum
UFC 4-470-02N	74032	USN and USMC Fitness Centers	(See UFC for Specific Requirements)	None	See comments
	* DON Minimum Fuel Requirement	Seven days either in a dedicated on-site main fuel tank or from a confirmed delivery source. When the seven day requirement is accomplished by a delivery source, provide each generator set with a minimum local 24 hour capacity tank based on the full-load fuel consumption rate of the engine.			

2. In accordance with current UFC requirements, each DON installation shall meet the minimum electrical resiliency requirements summarized in Table 2.

    a. The minimum requirement (UFC 3-540-01 (Ref. l)) for fuel storage is seven days either in a dedicated on-site main fuel tank or from a confirmed delivery source. When the seven-day requirement is accomplished by a delivery source, provide each generator set with a minimum local 24-hour capacity tank based on the full-load fuel consumption rate of the engine.

    b. The storage requirement can be adjusted by the Regional Commander if it is documented in writing that mission operations require a different operational duration. Facilities that have more stringent requirements than the UFC minimum are noted on Table 2.

    c. Additionally, some facilities are planned and designed for specialized resiliency requirements not captured by the category codes in Table 2. Where CATCODES do not address the requirement, consider resiliency requirements identified in the facility's specific Basic Facility Requirements (BFR) document.

3. For Installations within electrical reliability benchmarks set in Table 1, there may be a business case to increase resiliency if the cost impact of an electrical outage or multiple outages exceeds the investment cost of the resiliency improvement. For example, if a Navy shipyard experiences an extended, unplanned electrical outage, the stranded labor and productivity costs will likely dramatically exceed the cost of installing backup generators. Investments that directly improve the electrical system's reliability should be considered as potentially cost-effective solutions.

    a. The Department of Energy has developed a methodology to determine cost impacts of outages documented in the National Renewable Energy Laboratory study *Valuing Energy Security: Customer Damage Function Methodology and Case Studies at DoD Installations* (Ref. m). Additional details including a sample business case analysis are displayed in Section 5 of the study.

4. If an activity is considering a central plant, microgrid and/or distributed generation system as an engineered solution to improve resiliency, minimum existing resiliency requirements include, but are not limited to, those found in Table 2. Facility-specific BFR and UFC must be met. Additional guidance on microgrids can be found in P-601 (Microgrid Design Guide) (Ref. g).

Efficiency

1. Efficiency is a key component of Energy Security. Minimizing energy use directly saves resources, reduces the size of resiliency solutions, extends the operational duration of stored fuel, and provides general benefits that result from less energy to secure. Aligned with SECNAV INSTRUCTION 4101.3A, (Department of the Navy Energy Program (Ref. n), the Navy will optimize energy efficiency and shore operational effectiveness across all installations. Effective efficiency programs include capable energy data management and analytics; planning, programming and execution of diverse energy projects across all funding streams; and integration of IT systems to enhance capabilities, which may include advanced technology such as AMI, SCADA, or Direct Digital Control (DDC), per Table 3, Energy Efficiency Benchmark Criteria. Actively managing facilities with critical loads and the highest potential for consumption reduction will enable cost-effective facility management, optimized load management, demand response programs, and enhanced energy reliability and resiliency. Integrating DDC and central energy management and controls at facilities with the highest energy reduction potential will further increase opportunities to meet all mission essential energy security requirements.

Table 3
Energy Efficiency Benchmark Criteria

Parameter	Navy Benchmarks	USMC Benchmarks
SECNAV Energy and Water Program Review	• BLUE Management Award (criteria provided in App. B)	• BLUE Management Award (criteria provided in App. B)
AMI, SCADA, or DDC of electrical, water, and steam systems	• Mission Dependency Index (MDI)>85 and/or • Covered FACILITIES with > 75% energy use	• MDI>85 and/or • Covered FACILITIES with > 75% energy use
NSGEM (Navy Shore Geospatial Energy Module) for targeted installation and facility level analysis	• Planned Projects address Top 50% highest energy consumption reduction potential relative to ASHRAE facility benchmarks • All energy data validated quarterly by PWD and FEC	
Energy Reduction Goal for measuring progress toward SECNAV Goals / Executive Orders	• Plan exists for 50% consumption reduction by 2020 (2003 baseline), 2.5% energy use intensity (EUI) per year reduction by 2025(2015 baseline) and 2% per year water intensity reduction from 2007 baseline	• Plan exists for 50% consumption reduction by 2020 (2003 baseline), 2.5% energy use intensity (EUI) per year reduction by 2025 (2015 baseline) and 2% per year water intensity reduction from 2007 baseline

Section 3 Best Practices

The DON shall approach Energy Readiness by systematically engaging in best practices on an ongoing day-to-day, month-to-month, and year-to-year basis to improve energy reliability, resiliency, and efficiency.

Reliability

Reliability is closely tied to the transmission and distribution system of the utility provider, configuration, condition and age of installation distribution systems and completion of a rigorous preventive maintenance program.

Best Practices:

1. **Assess utility infrastructure.** Conduct utilities infrastructure condition assessments and electrical utility system assessments to assess utility risk and perform periodic inspections. Conduct utility deep dives, Nodal analysis, or root cause analysis for systems that are underperforming towards reliability goals.

2. **Tracking and reporting utility outages** is essential in order to make informed programmatic decisions for utility investments. Report planned and unplanned outages in MAXIMO in compliance with BMS B-5.2.14 Utility Outage Reporting and Data Collection (Ref. o).

3. **Coordinate and partner with utility provider to reduce outages.** Ensure utility providers maintain their rights of ways with active vegetation and animal management to avoid easily preventable outages.

4. **Coordinate and partner with commercial utility to provide route diversity** to improve utility reliability. Request and negotiate with commercial utility providers for dual circuits to an installation's primary electric substations to improve energy security when cost effective. Where these substations are equipped only with a single transformer, request and negotiate with the commercial power provider to install a second transformer in parallel for system redundancy.

5. **Comply with standard practices** to improve reliability. Complete and maintain over-current protection coordination studies (every 5 years) per National Fire Protection Association (NFPA), Institute of Electrical and Electronics Engineers (IEEE), and American National Standards Institute (ANSI) standards to limit cascading failures.

6. **Execute preventive maintenance (PM) on electrical systems in accordance with industry standards** (ANSI/NETA MTS),DODI 4170.11 (Ref. p), and UFC_3_550_07 OPERATION AND MAINTENANCE EXTERIOR POWER DISTRIBUTION SYSTEMS 2017-01-19 OMT (Ref. q) to optimize equipment

life and reliability. PM should include updates to equipment condition ratings in MAXIMO.

7. **Improve/coordinate preventive maintenance activities** to improve reliability.

    a. Maintain protective relay coordination in consideration of current loads to identify potential over-sensitivity settings or calibration drift.

    b. Review critical energy and generation capacity requirements and compare them to available generation capacity, including energy storage if available, to ascertain the effects of load growth and changes in equipment status on islanding capacity and resiliency.

8. **Prioritize major maintenance repairs, MILCON recapitalization, ESPC and UESC projects** for efficiency and reliability as part of Master Planning activities with consideration of longer range issues, such as equipment retirements and installation changes anticipated for the near term and future in accordance and consideration with BMS B-5.2.11 Utility Strategic Investment Plan (Ref. r).

9. **Reduce delivered fuels dependence.** Investigate the cost availability and cost effectiveness of centralized natural gas distribution. Plan fuel switching and utilize renewable energy investments to reduce financial exposure to volatility in fuel markets and to improve the installation's duration in the event of an energy supply disruption.

10. **Increase local power generation** to improve reliability. The need for distributed generation and microgrid facilities is especially acute when the commercial electricity supplier(s) do not meet the standards for SAIDI described previously and there are facilities with high criticality that do not have redundant power supplies.

Resiliency

The resiliency and system redundancy capabilities of the electric supplier greatly influence the need for backup capacity and energy supplies. Resiliency depends largely on the level of partnership with commercial utilities, distributed generation capacity, and grid and microgrid configurations. Generation and microgrid planning can encompass a wide range of objectives ranging from serving the entire installation to optimizing secondary uses (such as steam or chilled water), and providing adequate "islanding" capacity.

Best Practices

1. **Conduct Value engineering** to incorporate resiliency into projects. For example, as part of a project to reduce line losses, it may be possible to replace portions of an above ground electrical

distribution system with underground feeders with greater reliability.

2. **Coordinate and partner with commercial utility provider** to improve resiliency. Access to equipment, material, and manpower from nearby commercial utilities through mutual aid agreements can significantly reduce the amount of time required to restore power after a major disturbance.

3. **Collaborate with commercial utility managers and fuel suppliers** to explore how they can help the DON to improve installation energy readiness.

    a. **Establish communication links with the serving utility at control centers** during microgrid and smart grid planning and design.

    b. **Establish a mutual aid agreement** to allow sharing of compatible materials and manpower in emergency situations. Most utilities have model agreements in place that provide for both local and regional responses.

    c. **Obtain system one-line drawings from the commercial utilities** serving the installation to better understand the installation's exposure to first and second contingency outages.

    d. **Obtain the commercial electric utilities' rotating blackout and service restoration plans** and negotiate for most favorable treatment.

4. **Improve resiliency to critical missions.** Assess critical infrastructure configuration and condition to evaluate capability to deliver electrical power to critical loads.

5. **Evaluate the cost/benefits of placing critical feeders underground.**

6. **Utilize Smart Grid technology** to improve resiliency. The ability to monitor the status of all energy supplies, distribution circuits, and load requirements is central to distribution management especially when employing microgrids. This ability is enhanced greatly by the monitoring of installation assets through AMI and electrical SCADA.

7. **Incorporate and integrate control and monitoring systems with the capability to respond to system status changes.** There is no DON requirement to install microgrids, but microgrid projects can be pursued where cost effective and when in support of mission requirements. Evaluate the capacity of existing and planned power generation and "islanding" capability when considering microgrids.

8. **Evaluate fuel requirements for backup and distributed generation** to determine maximum operating time to serve critical loads in the event of grid failure.

9. **Incorporate renewable energy to reduce fuel consumption when cost effective.**

10. **Integrate batteries, thermal energy storage and other energy storage solutions** when cost effective to optimize the use of renewable generation resources.

11. **Integrate existing backup diesel generators into microgrids** when equipment meets environmental requirements and prime mover equipment is cost effective and practical.

12. **Anticipate** in the design of microgrids the need to periodically test equipment in order to ensure the microgrid will perform as required under emergency conditions. **Develop testing procedures and protocols for full-scale test** that include operating all energy generation systems, infrastructure and equipment. Testing should include islanding (disconnect from local commercial power) and black-start of onsite generation. At minimum, a full-scale test should be conducted on an annual basis.

Efficiency

Energy efficient shore facilities contribute to operational effectiveness, energy security, and energy affordability. Operational effectiveness is improved by reducing the resources needed to sustain support operations. Increasing the energy-efficiency of existing facilities is the most effective way to reduce consumption, protect critical assets, and increase the impact of distributed energy resources.

Best Practices

1. **Utilize third-party financing** (ESPC and UESC) to increase efficiency across whole installations, and reduce capital outlay for energy projects and EULs, as in Model 2's of the REPO Program and PPA's with an EUL as in Model 3's of the REPO Program. Utilize "bundling" approach where long payback Energy Conservation Measures (ECMs) coupled with short payback ECMs achieve a more complete and usable system (Ref. s).

2. Operating cost savings from cost-effective energy conservation measures and energy efficiency improvements can often pay for the required investment. The DON will strive to achieve its energy efficiency targets using the following strategies:

    a. Installations are to **complete a comprehensive energy and water evaluation** for approximately 25 percent of the "covered

facilities" in a manner that ensures evaluation of each such facility at least once every four years per the Energy Independence and Security Act of 2007. Low or no cost energy conservation measures should implemented, and resources should be obtained to implement other cost-effective measures.

b. **Invest in energy management systems** such as DDC, utility SCADA and AMI to provide installations with building-level reporting of energy consumption.

c. **Deploy Smart Grid systems to leverage all aspects of energy infrastructure.** Smart Grids have the potential to help sustain the benefits of investing in energy conservation measures and facility maintenance through increased monitoring and control capabilities. In a cyber-secure environment, implement enabling infrastructure and initiatives to leverage data transfer and consolidation at central nodes in a uniform, secure, and affordable manner that reduces costs and increase energy security across installations.

3. **Evaluate opportunities to improve project economics** for energy projects through distributed generation, Combined Heat and Power (CHP), and microgrids such as:

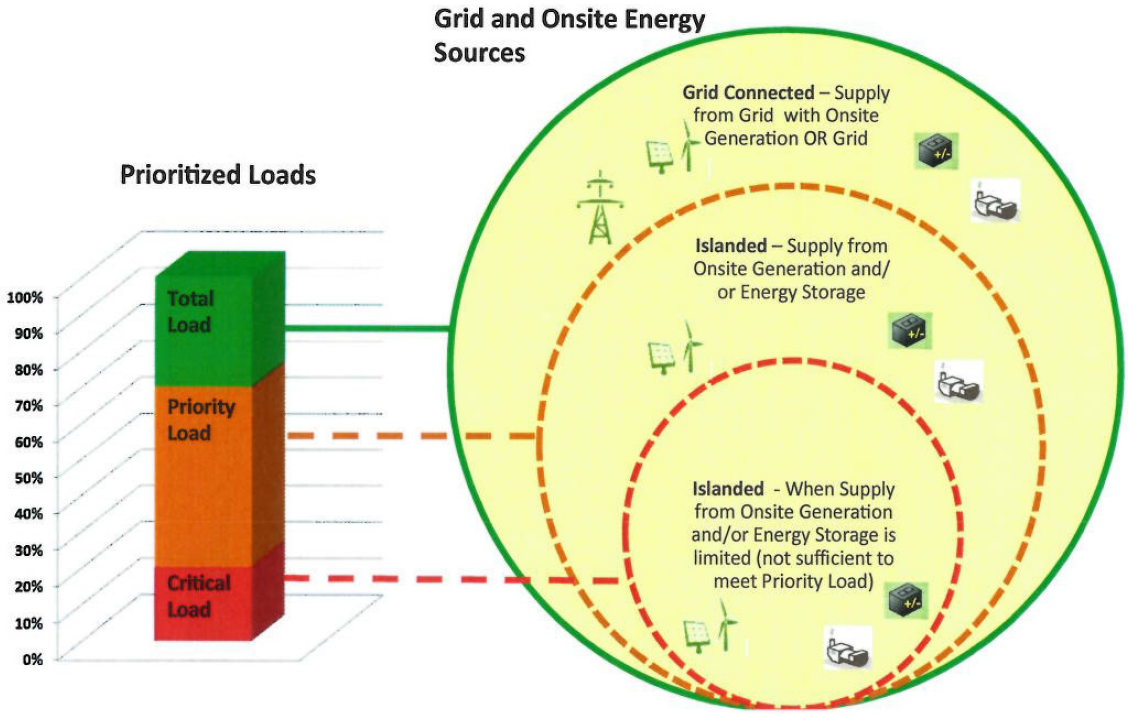
a. Improved energy efficiency through waste heat recovery and utilization.

b. Combined peak shaving with other installations served by the same utility or grid operator.

c. Provide the ability to operate in parallel with the commercial utility grid in order to reduce power imports or export power to other segments of the microgrid.

d. Participate in utility demand response programs and ancillary services markets if available.

Appendix A - Illustrations of Microgrid Design and Function



Appendix B - SECNAV Award Grading Criteria

Table 4 - SECNAV Awards Criteria

SECNAV Energy & Water Management Award Criteria

Objectively Graded Sections

Template Section	BLUE	GOLD	PLATINUM
3.2.2 New Technology and Non-Traditional Initiatives	One initiative investigated	At least three initiatives investigated	At least three initiatives investigated and at least one executed if reported DUERS cost is > $500K
3.3.1 Federal Building Design & Construction[1,2]	1-49% of the buildings with BOD in FY15 are built to LEED Silver or above	50-99% of buildings with BOD in FY15 are built to LEED Silver or above	100% of buildings with BOD in FY15 are built to LEED Silver or above
3.3.2 Design & Review[1]	SOP does not include review of designs by the energy manager or regional energy manager specifically for energy concerns	--	SOP includes review of designs by the energy manager or regional energy manager specifically for energy concerns
4.1.a Command Policy	--	Signed and dated energy instruction	Signed energy instruction dated within 7 years
4.1.c Energy Conservation Board/Management Team and Participation	Met once per reporting period and PWO or equivalent must attend	Met at least twice per reporting period and PWO or equivalent must attend	Met at least twice per reporting period and CO/XO or equivalent must attend
4.2 Energy Management Personnel	Energy manager duties designated in writing	Energy manager duties designated in writing, and total % staff time > DUERS cost / 130K	Energy manager duties designated in writing, and total % time > DUERS cost / 70K
4.3.b CECOS Energy Manager's Course Attendance	Current energy manager has attended unless s/he has been in position less than 2 years	--	Current energy manager has attended unless s/he has been in position less than 1 year
4.3.c Energy Management Personnel Training	3 hours in past 5 yrs per $1M annual cost reported in DUERS, or 24 hours in 5 years, whichever is greater	8 hours in past 5 yrs per $1M annual cost reported in DUERS, or 40 hours in 5 years, whichever is greater	17 hours in past 5 yrs per $1M annual cost reported in DUERS, or 60 hours in 5 years, whichever is greater
4.3.e&f Energy Training for Other Personnel	Design/design review personnel have not received energy training and O&M personnel have not received energy training	--	Design/design review personnel have received energy training and O&M personnel have received energy training

Weighted Sections

	POINTS 1	2	3	4	5	6	7
2.1.1 Energy Performance Trend for Goal Facilities [Relative to Recent Performance]	Base = Average MBTU/KSF for reporting year minus 3 (FY-3) and minus 4 (FY-4). Add together points from 4 parts						
	Part 1. % improvement from base to reporting year. 4 points for 15% or more, 3 points for 9% to 15%, 2 points for 6% to 9%, 1 point for any improvement up to 6%						
	Part 2. % improvement reporting year minus 1 to reporting year. 1 point for 3% or more						
	Part 3. % improvement from reporting year minus 2 to reporting year minus 1. 1 point for 3% or more						
	Part 4. % improvement from base to reporting year minus 2. 1 point for 3% or more						
2.1.1 Energy Performance Trend for Goal Facilities [Relative to Baseline]		Any improvement from baseline	2015 goal met (-30%)				
2.1.6 Potable Water Performance Trend [Relative to Baseline]	Any improvement from baseline	Interim goal met (-16%)	2020 goal met (-20%)				
3.1.1&2 Projects Awarded[3,4]	0.005<X<=0.01	0.01<X<=0.04	0.04<X<=0.07	0.07<X<=0.1	0.1<X<=0.13	0.13<X	
3.1.4 Renewable Energy Projects in Operation	Additional generation/savings in reporting year >= 5% of DUERS MBTU	Additional generation/savings in reporting year >=1% of DUERS MBTU	Additional generation/savings in reporting year >=2.5% of DUERS MBTU				
3.1.5 Activity Funded Initiatives Executed[3]	0.0025<X<=0.0125	0.0125<X<=0.0225	0.0225<X				
3.1.6 Projects Planned[3,4]	0.01<X<=0.03	0.03<X<=0.05	0.05<X				
3.2.1 Energy and Water Surveys	Evaluated square footage > 0						
4.4 Building Energy Monitors	BEMs have been designated for each building, met once, and 20% are trained in duties	BEMs have been designated for each building, met twice, and 50% are trained in duties	BEMs have been designated for each building, met three times, 90% are trained in duties, and area specific check lists are used				
4.5 Energy Awareness Program	Distributes DON and/or DOE-provided materials	Distributes DON and/or DOE-provided materials and has significant measures incorporated into energy awareness program		Distributes DON and/or DOE-provided materials and has frequently used significant measures incorporated into energy awareness program			
4.6.a Basic Energy Management Practices	1 point for each checked item in 50% column, 2 points for each checked item in 95% column, divide						
4.6.b&c Water Management Plan & Implemented Best Practices	Has a water management plan and has fully implemented up to 3 best water management practices	Has a water management plan and has fully implemented 4 best water management practices					
4.7 Ordering Energy Efficient Products & Services	#4 or #5 checked	#1 through #5 checked					
4.8 Alternative Fuel Vehicles Goals	Met EISA 2007 goal of 20% petroleum reduction relative to FY05 baseline	Met SECNAV goal of 50% petroleum reduction relative to FY15 baseline					

[1] Explanation for "no" or "N/A" in section 5.2 may waive this requirement
[2] Waived if no buildings had BOD in FY15
[3] X = [(total cost savings)/(annual energy cost)]
[4] REPO projects will not be scored

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/16/2017 9:30:52 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Patel, Dinesh [dinesh.patel@nationalgrid.com]
CC: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Navy CHP - Next Steps for Eval & Execution
Attachments: Navy CHP RI 2018 Electric Screening Model.xlsx

Hi –

It seems to me the first step is to make sure we have the right values in an appropriate BC model, where I should have agreed with Dinesh on the last call that we should understand the BC model values before moving forward. Understanding the BC models turned out to be more complicated than my first or second iterations, since the various BC models are in various states relating to the change to the new RI test and how to isolate different elements with certainty. I scheduled a meeting Tuesday noon-12:30p since it was open on people's calendars, but we can move it as makes sense.

Attached is a marked up 2018 plan BC model, where I put the project specific factors on their own separate 'simplified BCR' sheet (in an effort to arrive at the same values with 'hand calculation' and the fancy table look-ups, etc.) I find a BC of 1.08 with the standard inputs, but I would like us all to discuss the inputs & calculations so we have a clear definition of the situation. Aside from the electric benefits, the carbon benefit added ~$35M and the econ benefit is $14M, which significantly help this project offset the negative ~$81M gas and ~$13M O&M benefits.

Mark

From: Ferris, Gerald Jr
Sent: Monday, October 16, 2017 11:10 AM
To: Coughlin, Thomas J. Jr.
Cc: Patel, Dinesh; Sevier, Mark; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Henschel, Rachel; Lonergan, Beth
Subject: Re: Navy CHP - Next Steps for Eval & Execution

I can be in Waltham tomorrow for morning meeting if that helps?

Thanks Jed

On Oct 16, 2017, at 10:58 AM, Coughlin, Thomas J. Jr. <Thomas.Coughlin@nationalgrid.com> wrote:

> Dinesh, Mark and Jed,
>
> Can we set up a meeting to discuss this? My calendar is pretty much open tomorrow.

Tom Coughlin
Manager, Technical Policy | **National Grid**
| Office ☎ 781.907.1582 |
| Cell ☎ 978.501.3689 | Fax 🖷 781.296.8090 |
thomas.coughlin@nationalgrid.com
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Please consider the environment before printing this e-mail

From: Henschel, Rachel
Sent: Monday, October 16, 2017 10:12 AM
To: Coughlin, Thomas J. Jr.; McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Newberger, Jeremy J.; Patel, Dinesh; Lonergan, Beth
Subject: Navy CHP - Next Steps for Eval & Execution

Everyone,

This email chain has a lot of threads and thoughts on it, and I'd like to clear up a few things and set out the next steps.

First, I want to be clear that this is a project where there will be energy savings and grid benefits. There are questions around costs given unique customer circumstances. This has been complicated because it's a comprehensive project that is pushing us to perfect the RI Test screening and work through the intentions of the Commission's SIRI principles in quick fashion. This is a project we're going to learn from and will help us in RI transformation.

Second, Mark and Jed are documenting the screening, addressing thoughtful questions, and tracking down customer information and Distribution information. They will continue to get technical input from Tom & Dinesh. The customer commitment is not being made by a vote. I am asking them to provide a recommendation with appropriate documentation and justification.

This is a project in which I see various paths to having a high benefit cost ratio and Mark and Jed are researching those paths. Ultimately, the requirement is for the programs to be cost effective, not a customer project, and that will be included in the assessment and recommendation of this project.

For the short term customer needs Mark & Jed are working on the documentation and I am asking them to present a final recommendation via email asap. Action items and meetings have already been set up to accomplish this. I'd like to ask that the deep subject matter emails be exchanged not on this email chain but among those working deeply on it.

Third, this is an opportunity for process improvement as many have pointed out. After we help the customer, I'd like a few of us to sit down and talk about opportunities for a thoughtful 3C to be raised by the early Nov hub.

Thanks,
Rachel

From: Coughlin, Thomas J. Jr.
Sent: Friday, October 13, 2017 9:34 AM
To: McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

From Rachel's e-mail, it seems we need to develop a new internal capability along with the process to handle projects like this.

Currently, evaluation's review is not included in our project task hierarchy but could be added. I know I'm jumping ahead, but I recommend a new specialist, perhaps reporting to Rachel, that would work through projects like this. So, similar to Stephan's or Kevin Roses roles.

Tom Coughlin
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From: McAteer, Michael L.
Sent: Thursday, October 12, 2017 4:05 PM
To: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

I agree with Carol especially when this approach becomes precedent setting . We should all feel confident that the b/c test we are using is consistent with criteria and that when it deviates as we can see with the evolution of our business that we note that deviation clearly (ie Carbon or other additional benefits)

This will avoid us making commitments to customers that we will have to overturn once a deeper evaluation is conducted . To Carols point about process is there a method we can use that ensures an evaluation person is brought in during the application review before sign –off on customer commitment to a transaction . In this case we benefited from Mark's insight and contributions and were covered but this is not always the case unless I am mistaken. - M

From: White, Carol S. (US-NBRO-RM)
Sent: Thursday, October 12, 2017 12:01 PM
To: Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Personally, I don't think this type of decision should be made via a popular vote. I think we need to ensure that we have an appropriate process in place that is applicable to all of these projects and that can be defended as being consistent with state requirements and customer equity concerns.

Can we create a comprehensive list of the costs and benefits that should be included in the b/c assessment? And can we document a reasonable estimate of the savings that will be realized on the grid? It's possible that those savings will be 0 and also possible that the other benefits reflect value in excess of costs, right?

Carol S. White
Director, Program Operations
National Grid
40 Sylvan Road
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Phone: 781-907-1566
Cell: 508-212-7508
carol.s.white@nationalgrid.com

From: Sevier, Mark
Sent: Thursday, October 12, 2017 11:24 AM
To: Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

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To: Henschel, Rachel; Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

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Do we need another call?

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
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Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
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Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

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To: Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: An unfortunate answer to Dinesh's question on the change in Navy BCR

Agreed. Mark- we can work through this together.

Sent from my iPad

Tom Coughlin
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Sent: Wednesday, October 11, 2017 2:15 PM

To: Sevier, Mark

Cc: Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel

Subject: Re: Navy CHP BCR using RI 2018 plan BC model > 1

Probably worth still discussing but very interesting insight with the new test

Sent from my iPhone

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It occurred to me today that I could modify the CHP row in the 2018 plan BC model to assess the Navy CHP project under the 'new' RI test that includes updated avoided energy costs, an avoided cost for carbon, and a different $ value for economic benefit, before the 2018 C&I custom screening tool is created. Using the 'straightforward' BC inputs as we've been talking about:

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In light of this new information about the proposed Navy CHP BCR, I don't think we need to spend time this afternoon discussing the oddities related to the project's financial situation. Let me know if you'd still like to get together to discuss this new information.

Thanks,

Mark

-----Original Appointment-----

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Sent: Tuesday, October 10, 2017 5:07 PM

To: Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Sevier, Mark; Henschel, Rachel

Subject: Tom Coughlin is your host

When: Wednesday, October 11, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Meeting to discuss Naval Station Newport CHP proposal

Its going to be difficult to get us all together .Carol, Mark and Jed have conflicts in their calendars during this time slot. If you can break away from your meetings, great! If not, I can schedule for another time.

-- Do not delete or change any of the following text. --

Join me now in my WebEx Personal Room.

Join WebEx meeting

https://usnationalgrid.webex.com/join/thomas.coughlin | 592 764 622

Join by phone

+44-121-210-9045 UK Birmingham Toll

+1-866-662-9987 US Toll Free

Access code: 592 764 622

Global call-in numbers<https://usnationalgrid.webex.com/cmp3100/webcomponents/widget/globalcallin/globalcallin.do?siteurl=usnationalgrid&serviceType=MC&ED=562910082&tollFree=1> | Toll-free calling restrictions<https://www.webex.com/pdf/tollfree_restrictions.pdf>

Can't join the meeting? Contact support.<https://usnationalgrid.webex.com/mc>

IMPORTANT NOTICE: Please note that this WebEx service allows audio and other information sent during the session to be recorded, which may be discoverable in a legal matter. By joining this session, you automatically consent to such recordings. If you do not consent to being recorded, discuss your concerns with the host or do not join the session.

Confidential Document Withheld from Production

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/17/2017 6:05:46 PM
To: Patel, Dinesh [dinesh.patel@nationalgrid.com]
CC: Henschel, Rachel [rachel.henschel@nationalgrid.com]; Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: Navy BCR

Responses below; let me know if you need more clarification.

Mark

From: Patel, Dinesh
Sent: Tuesday, October 17, 2017 8:47 AM
To: Coughlin, Thomas J. Jr.; Ferris, Gerald Jr; Sevier, Mark
Cc: Henschel, Rachel
Subject: Navy BCR

My thoughts and questions as I will not be able to make the meeting at ResWoods today:

1. Spreadsheet Mark sent shows 14 Million dollars in Economic benefits calculated at 0.80 4/ project cost. Is this in the current BCR model? Is this different than the current model? – the 2018 RI plan includes an economic benefit of $0.80 per dollar of project cost for all measures; the former value was $2.73/incentive dollar for CHP only
2. CO2 Benefits - How were they derived? Are they applicable to all projects going forward in 2018? – the 2018 RI plan used the same CO2 benefits for all measures, which came from the most recent avoided cost study and were used in the 2018-2020 RI plan.
3. Is the proposed BCR model audited by others? Whitney will be a good resource to do that. – I was assuming this group (including you) would want to audit the BC model values, which is why I sent them. If I get Whitney to review my simplified BC version, will you feel comfortable with it and/or would you want to be involved in that discussion?
4. If we are not sure about the accuracy and assumption of the new BCR model for 2018, why would we lead the customer to believe that the BCR will pass and incentive will be there? – after the regrettable error I made in an effort to rapidly get a better idea of a 2018 RI BCR screening, this time I investigated the elements much more rigorously and in a simple 'hand calculation' type format as you suggested on the last call, where at this point I am comfortable with the BCR screening that I sent along, and I was looking for your BC model specific questions and feedback. These efforts are in response to the customer's request to find out if NGrid is unlikely to support this project with a multi-million dollar incentive, where my suggestion at this point is that an important person at NGrid should stop the project discussion immediately if there is any risk that no incentive will eventually be offered, since it seems likely there will be no turning back, given the political problems that would create. FWIW, I recommend continuing the project discussion with the customer under the assumption an incentive will be paid and project savings claimed.
5. The distribution deferment benefits for a project larger than 1 MW is to be determined based on a case by case basis. If we have not determined them for this project, how can we make any decision as it will have a effect on the BCR. If there dedicated services to the base and there are no other customers on these distribution lines, having the CHP may not add any value to the distribution deferment benefits as the capacity will be required during the summer months when they are not running the CHP. – with the simplified BC screening I sent along, I did not include unknown distribution benefits (positive or negative)
6. There is no current policy to take the benefits of solar project and apply them to an EE project. This is not a technical issue so I would like to see a clear policy laid out in writing for all projects going forward about this issue. This issue needs to be resolved ASAP to review this project BCR. . – with the simplified BC screening I

sent along, I did not include the PV array, which think will only improve the screening situation, since it appears the PV array is essentially paying down the cost of the CHP to the Navy, in what I assume is a competitive PV marketplace.

7. Since there are no calculations submitted to estimate energy savings because the Navy consultant considers them proprietary, I do not have any confidence in the numbers we use in running trial BCRs. WE are taking a big risk if we use unaudited energy saving numbers and could mislead the customer as to incentive. – As someone who has reviewed / QC'd LCI custom projects for several years, I could list several other projects with a much higher audit risks than a Navy CHP, especially when you consider that the combined Navy project would almost certainly some real and measureable energy savings, and show NGrid capability of combining EE with an uncommon financing approach and a large PV array. From what I've seen of the RI stakeholder situation, this combined project looks like a giant win, where IMO stakeholders are unlikely to force NGrid to take a narrow view of the benefits and costs of the proposed project, which could mean no project.
8. Why we are rushing to answer the customer when we are not sure about lot of variables used in BCR? - to be responsive to the customer's needs of figuring out the potential financial situation surrounding the CHP, and the larger project it is part of.

Let me know if there any technical issues you want me to address. Please forgive me if my comments are inappropriate due to my lack of understanding of the BCR related policies.

Dinesh Patel

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/17/2017 12:53:41 PM
To: Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Patel, Dinesh [dinesh.patel@nationalgrid.com]
CC: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Navy CHP - Next Steps for Eval & Execution

If an 11a meeting works better for others, I can make that

-----Original Appointment-----
From: Coughlin, Thomas J. Jr.
Sent: Tuesday, October 17, 2017 7:14 AM
To: Sevier, Mark; Ferris, Gerald Jr; Patel, Dinesh
Cc: Henschel, Rachel
Subject: Canceled: Navy CHP - Next Steps for Eval & Execution
When: Tuesday, October 17, 2017 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: 1st floor East Cafe and WEBx
Importance: High

All: I was planning my day and saw that Mark had dropped a meeting into a different time slot. We'll go with that and I'll cancel this one. Thanks, Mark.

From: Sevier, Mark
Sent: Monday, October 16, 2017 5:31 PM
To: Ferris, Gerald Jr; Coughlin, Thomas J. Jr.; Patel, Dinesh
Cc: Henschel, Rachel
Subject: RE: Navy CHP - Next Steps for Eval & Execution

Hi –

It seems to me the first step is to make sure we have the right values in an appropriate BC model, where I should have agreed with Dinesh on the last call that we should understand the BC model values before moving forward. Understanding the BC models turned out to be more complicated than my first or second iterations, since the various BC models are in various states relating to the change to the new RI test and how to isolate different elements with certainty. I scheduled a meeting Tuesday noon-12:30p since it was open on people's calendars, but we can move it as makes sense.

Attached is a marked up 2018 plan BC model, where I put the project specific factors on their own separate 'simplified BCR' sheet (in an effort to arrive at the same values with 'hand calculation' and the fancy table look-ups, etc.) I find a BC of 1.08 with the standard inputs, but I would like us all to discuss the inputs & calculations so we have a clear definition of the situation. Aside from the electric benefits, the carbon benefit added ~$35M and the econ benefit is $14M, which significantly help this project offset the negative ~$81M gas and ~$13M O&M benefits.

Mark

From: Ferris, Gerald Jr
Sent: Monday, October 16, 2017 11:10 AM
To: Coughlin, Thomas J. Jr.
Cc: Patel, Dinesh; Sevier, Mark; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Henschel,

Rachel; Lonergan, Beth
Subject: Re: Navy CHP - Next Steps for Eval & Execution

I can be in Waltham tomorrow for morning meeting if that helps?

Thanks Jed

On Oct 16, 2017, at 10:58 AM, Coughlin, Thomas J. Jr. <Thomas.Coughlin@nationalgrid.com> wrote:

Dinesh, Mark and Jed,

Can we set up a meeting to discuss this? My calendar is pretty much open tomorrow.

Tom Coughlin
Manager, Technical Policy | **National Grid**
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| Cell ☎ 978.501.3689 | Fax 781.296.8090 |
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From: Henschel, Rachel
Sent: Monday, October 16, 2017 10:12 AM
To: Coughlin, Thomas J. Jr.; McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Newberger, Jeremy J.; Patel, Dinesh; Lonergan, Beth
Subject: Navy CHP - Next Steps for Eval & Execution

Everyone,

This email chain has a lot of threads and thoughts on it, and I'd like to clear up a few things and set out the next steps.

First, I want to be clear that this is a project where there will be energy savings and grid benefits. There are questions around costs given unique customer circumstances. This has been complicated because it's a comprehensive project that is pushing us to perfect the RI Test screening and work through the intentions of the Commission's SIRI principles in quick fashion. This is a project we're going to learn from and will help us in RI transformation.

Second, Mark and Jed are documenting the screening, addressing thoughtful questions, and tracking down customer information and Distribution information. They will continue to get technical input from Tom & Dinesh. The customer commitment is not being made by a vote. I am asking them to provide a recommendation with appropriate documentation and justification.

This is a project in which I see various paths to having a high benefit cost ratio and Mark and Jed are researching those paths. Ultimately, the requirement is for the programs to be cost effective, not a customer project, and that will be included in the assessment and recommendation of this project.

For the short term customer needs Mark & Jed are working on the documentation and I am asking them to present a final recommendation via email asap. Action items and meetings have already been set up to accomplish this. I'd like to ask that the deep subject matter emails be exchanged not on this email chain but among those working deeply on it.

Third, this is an opportunity for process improvement as many have pointed out. After we help the customer, I'd like a few of us to sit down and talk about opportunities for a thoughtful 3C to be raised by the early Nov hub.

Thanks,

Rachel
From: Coughlin, Thomas J. Jr.
Sent: Friday, October 13, 2017 9:34 AM
To: McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

From Rachel's e-mail, it seems we need to develop a new internal capability along with the process to handle projects like this.

Currently, evaluation's review is not included in our project task hierarchy but could be added. I know I'm jumping ahead, but I recommend a new specialist, perhaps reporting to Rachel, that would work through projects like this. So, similar to Stephan's or Kevin Roses roles.

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From: McAteer, Michael L.
Sent: Thursday, October 12, 2017 4:05 PM
To: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

I agree with Carol especially when this approach becomes precedent setting . We should all feel confident that the b/c test we are using is consistent with criteria and that when it deviates as we can see with the evolution of our business that we note that deviation clearly (ie Carbon or other additional benefits)

This will avoid us making commitments to customers that we will have to overturn once a deeper evaluation is conducted . To Carols point about process is there a method we can use that ensures an evaluation person is brought in during the application review before sign –off on customer commitment to a transaction . In this case we benefited from Mark's insight and contributions and were covered but this is not always the case unless I am mistaken. - M

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Mark

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 10/17/2017 11:35:28 AM
To: Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Sevier, Mark [mark.sevier@nationalgrid.com]; Patel, Dinesh [dinesh.patel@nationalgrid.com]
CC: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Navy CHP - Next Steps for Eval & Execution

Can we keep the 11 am version? I few of us are running up to program review and I think 30 mins will not be enough time to cover this topic?

Gerald (*Jed*) Ferris
NE CHP Project Manager
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280 Melrose Street
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Appointment-----
From: Coughlin, Thomas J. Jr.
Sent: Tuesday, October 17, 2017 7:14 AM
To: Sevier, Mark; Ferris, Gerald Jr; Patel, Dinesh
Cc: Henschel, Rachel
Subject: Canceled: Navy CHP - Next Steps for Eval & Execution
When: Tuesday, October 17, 2017 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: 1st floor East Cafe and WEBx
Importance: High

All: I was planning my day and saw that Mark had dropped a meeting into a different time slot. We'll go with that and I'll cancel this one. Thanks, Mark.

From: Sevier, Mark
Sent: Monday, October 16, 2017 5:31 PM
To: Ferris, Gerald Jr; Coughlin, Thomas J. Jr.; Patel, Dinesh
Cc: Henschel, Rachel
Subject: RE: Navy CHP - Next Steps for Eval & Execution

Hi –

It seems to me the first step is to make sure we have the right values in an appropriate BC model, where I should have agreed with Dinesh on the last call that we should understand the BC model values before moving forward. Understanding the BC models turned out to be more complicated than my first or second iterations, since the various BC models are in various states relating to the change to the new RI test and how to isolate different elements with certainty. I scheduled a meeting Tuesday noon-12:30p since it was open on people's calendars, but we can move it as makes sense.

Attached is a marked up 2018 plan BC model, where I put the project specific factors on their own separate 'simplified BCR' sheet (in an effort to arrive at the same values with 'hand calculation' and the fancy table look-ups, etc.) I find a BC of 1.08 with the standard inputs, but I would like us all to discuss the inputs & calculations so we have a clear definition of the situation. Aside from the electric benefits, the carbon benefit added ~$35M and the econ benefit is $14M, which significantly help this project offset the negative ~$81M gas and ~$13M O&M benefits.

Mark

From: Ferris, Gerald Jr
Sent: Monday, October 16, 2017 11:10 AM
To: Coughlin, Thomas J. Jr.
Cc: Patel, Dinesh; Sevier, Mark; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Henschel, Rachel; Lonergan, Beth
Subject: Re: Navy CHP - Next Steps for Eval & Execution

I can be in Waltham tomorrow for morning meeting if that helps?

Thanks Jed

On Oct 16, 2017, at 10:58 AM, Coughlin, Thomas J. Jr. <Thomas.Coughlin@nationalgrid.com> wrote:

Dinesh, Mark and Jed,

Can we set up a meeting to discuss this? My calendar is pretty much open tomorrow.

Tom Coughlin
Manager, Technical Policy | **National Grid**
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| Cell ☎ 978.501.3689 | Fax 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

From: Henschel, Rachel
Sent: Monday, October 16, 2017 10:12 AM
To: Coughlin, Thomas J. Jr.; McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Newberger, Jeremy J.; Patel, Dinesh; Lonergan, Beth
Subject: Navy CHP - Next Steps for Eval & Execution

Everyone,

This email chain has a lot of threads and thoughts on it, and I'd like to clear up a few things and set out the next steps.

First, I want to be clear that this is a project where there will be energy savings and grid benefits. There are questions around costs given unique customer circumstances. This has been complicated because it's a comprehensive project that is pushing us to perfect the RI Test screening and work through the intentions of the Commission's SIRI principles in quick fashion. This is a project we're going to learn from and will help us in RI transformation.

Second, Mark and Jed are documenting the screening, addressing thoughtful questions, and tracking down customer information and Distribution information. They will continue to get technical input from Tom & Dinesh. The customer commitment is not being made by a vote. I am asking them to provide a recommendation with appropriate documentation and justification.

This is a project in which I see various paths to having a high benefit cost ratio and Mark and Jed are researching those paths. Ultimately, the requirement is for the programs to be cost effective, not a customer project, and that will be included in the assessment and recommendation of this project.

For the short term customer needs Mark & Jed are working on the documentation and I am asking them to present a final recommendation via email asap. Action items and meetings have already been set up to accomplish this. I'd like to ask that the deep subject matter emails be exchanged not on this email chain but among those working deeply on it.

Third, this is an opportunity for process improvement as many have pointed out. After we help the customer, I'd like a few of us to sit down and talk about opportunities for a thoughtful 3C to be raised by the early Nov hub.

Thanks,
Rachel
From: Coughlin, Thomas J. Jr.
Sent: Friday, October 13, 2017 9:34 AM
To: McAteer, Michael L.
Cc: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

From Rachel's e-mail, it seems we need to develop a new internal capability along with the process to handle projects like this.

Currently, evaluation's review is not included in our project task hierarchy but could be added. I know I'm jumping ahead, but I recommend a new specialist, perhaps reporting to Rachel, that would work through projects like this. So, similar to Stephan's or Kevin Roses roles.

Tom Coughlin
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thomas.coughlin@nationalgrid.com
www.nationalgrid.com
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From: McAteer, Michael L.
Sent: Thursday, October 12, 2017 4:05 PM
To: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

I agree with Carol especially when this approach becomes precedent setting . We should all feel confident that the b/c test we are using is consistent with criteria and that when it deviates as we can see with the evolution of our business that we note that deviation clearly (ie Carbon or other additional benefits)

This will avoid us making commitments to customers that we will have to overturn once a deeper evaluation is conducted . To Carols point about process is there a method we can use that ensures an evaluation person is brought in during the application review before sign –off on customer commitment to a transaction . In this case we benefited from Mark's insight and contributions and were covered but this is not always the case unless I am mistaken. - M

From: White, Carol S. (US-NBRO-RM)
Sent: Thursday, October 12, 2017 12:01 PM

To: Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Personally, I don't think this type of decision should be made via a popular vote. I think we need to ensure that we have an appropriate process in place that is applicable to all of these projects and that can be defended as being consistent with state requirements and customer equity concerns.

Can we create a comprehensive list of the costs and benefits that should be included in the b/c assessment? And can we document a reasonable estimate of the savings that will be realized on the grid? It's possible that those savings will be 0 and also possible that the other benefits reflect value in excess of costs, right?

Carol S. White
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Phone: 781-907-1566
Cell: 508-212-7508
carol.s.white@nationalgrid.com

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Sent: Thursday, October 12, 2017 11:24 AM
To: Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

It seems to me given the current state of information Dinesh makes the call not to do the project and I make the call to do the project; perhaps more important people can take a position as a vote and we go down that path no matter where it leads.

Keep in mind that officially the C&I retrofit program needs to be cost effective, so even if we can't find a way to show a Navy CHP project to be cost effective, the net effect on the C&I retrofit program will be small, and the program will almost certainly still be cost effective.

Veolia went on for months beyond this state, so most likely we aren't going to get 'quick and certain' answers that work well for the customer's timeline, and stringing them along is going to make saying 'no' later more and more difficult.

Mark

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Sent: Thursday, October 12, 2017 11:07 AM
To: Henschel, Rachel; Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

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Are we not comfortable that we can get it to pass the BCR as Dinesh, Tom and Mark S and I discussed two days ago about using the Lease payment in the NEB's section? I understand we would like to not use that if we could but can we

at least let the Navy move forward and by the time the TA study is complete we will have two possible solutions to the BCR dilemma. Lease payment option or distribution benefits?

Do we need another call?

Jed

Gerald (*Jed*) Ferris
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Sent: Thursday, October 12, 2017 10:55 AM
To: Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

Mark,

Jeremy pointed out that CHP's larger than 1 MW need to consider location-specific distribution benefits. Can you please work with Ryan Constable's team to get an estimate that would update what the bc model has? Since the CHP will be on Aquidneck Island, the local benefits may be very different than the average system benefits in the screening model.

The 2017 plan states that this may entail a detailed engineering analysis, but for this initial screening an estimate will help indicate whether the CHP screens and/or if a detailed study is needed.

Because this CHP is part of a solar-CHP arrangement, it's also a good opportunity to talk with Regulatory and Distribution about how we address and screen this project using the Commission's principles from SIRI.

Jed – this will take time, will that be ok?

--Rachel

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Sent: Wednesday, October 11, 2017 9:58 PM
To: Sevier, Mark
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Newberger, Jeremy J.; Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: An unfortunate answer to Dinesh's question on the change in Navy BCR

Agreed. Mark- we can work through this together.

Sent from my iPad

Tom Coughlin
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On Oct 11, 2017, at 9:31 PM, White, Carol S. (US-NBRO-RM) <Carol.S.White@nationalgrid.com> wrote:

A for effort.

Sent from my iPad

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After several iterations of modifying a somewhat unfamiliar tool (planning BC tool), I did not double check a value that wasn't there - the CHP negative O&M, which when corrected lowers the BC back below 1 (need more time to come to a final value). My apologies for this error, though hopefully not a major problem since it did not linger long.

I maintain my position that it does not make sense to me that the EE programs might not be able to support a CHP project that is being partly supported by a solar installation through a non-simple barrier-removing financial transaction in a state where there is significant support for all three.

Mark

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Sent: Wednesday, October 11, 2017 2:15 PM
To: Sevier, Mark
Cc: Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Henschel, Rachel
Subject: Re: Navy CHP BCR using RI 2018 plan BC model > 1

Probably worth still discussing but very interesting insight with the new test

Sent from my iPhone

On Oct 11, 2017, at 2:09 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com<mailto:Mark.Sevier@nationalgrid.com>> wrote:

Hi all –

It occurred to me today that I could modify the CHP row in the 2018 plan BC model to assess the Navy CHP project under the 'new' RI test that includes updated avoided energy costs, an avoided cost for carbon, and a different $ value for economic benefit, before the 2018 C&I custom screening tool is created. Using the 'straightforward' BC inputs as we've been talking about:

I find the project to have a BCR of 1.5. The above project values will still need to be vetted, where significant differences could change the situation, but the 1.5 leaves a comfortable margin. Most likely, we will be in 2018 before we have vetted values, and the project would probably complete in 2019 at the earliest, so it seems reasonable to use the 2018 BC test values.

In light of this new information about the proposed Navy CHP BCR, I don't think we need to spend time this afternoon discussing the oddities related to the project's financial situation. Let me know if you'd still like to get together to discuss this new information.

Thanks,
Mark

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Sent: Tuesday, October 10, 2017 5:07 PM
To: Coughlin, Thomas J. Jr.; McAteer, Michael L.; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Ferris, Gerald Jr; Patel, Dinesh; Sevier, Mark; Henschel, Rachel
Subject: Tom Coughlin is your host
When: Wednesday, October 11, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Meeting to discuss Naval Station Newport CHP proposal

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
on behalf of Sevier, Mark [/o=grid/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=mark.sevier]
Sent: 10/18/2017 10:03:39 AM
To: McAteer, Michael L. [michael.mcateer@nationalgrid.com]; White, Carol S. (US-NBRO-RM) [carol.s.white@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]; Patel, Dinesh [dinesh.patel@nationalgrid.com]
Subject: Thinking like the utility of the future

I feel compelled to reply to responses to my suggestion that others weigh in on the Navy CHP project even in light of incomplete information / uncertainty. While I can appreciate that no one (including me) prefers to make a judgment call on something as seemingly weighty as the Navy CHP project with incomplete information, I think the signals from RI consultants and regulators are quite clear: NGrid should find new and innovative ways to help customers implement comprehensive energy efficiency (and renewable energy projects) to reduce fossil fuel energy use, within reasonable equitability and costs for ratepayers.

In my time at NGrid, I have pursued this objective by supporting projects like Veolia and Navy CHP that to me represent the kind of thinking the consultants are looking for (and IMO the industry needs), and that will have real and measurable energy savings. With Veolia, someone at NGrid helped the customer reduce their overall gas use by building a short section of pipe so they could use less gas with a smaller summer boiler; the typical gas utility model is to build more and bigger gas pipes to sell more gas, not less, hence IMO the Veolia project represented thinking that aligned with program principles. With the Navy CHP project, a third party developer has come up with a way to implement EE & PV in a combination project that looks like it will work for the customer's situation, where even though NGrid brought up CHP to the Navy many years ago, no one had come up with a way to get it done.

I've also tried to stop or reduce spending on projects like the university task light/powerstrip project* and measures like steam traps, both of which appear to pass the BCR test, but IMO are not a good use of ratepayer EE money since little measurable energy savings will result from either. The net effect is that judgment calls are inherent to considering projects in these programs, especially when those projects push the boundaries of what has been done before, at which point it seems to me we should refer to the high level guiding principles of helping customers reduce energy consumption without undue cost implications to other ratepayers.

IMO the main risk with the Navy CHP project is that NGrid is a reluctant bystander and not an active participant because 'we' couldn't see how well the project aligned with the principles that created these programs in the first place.

Mark

* - I wish folks were as concerned about blowing off process and spending $2M on the task lights last November as they seem to be for the Navy CHP, where the CHP will probably be more than a 10x better ratio of incentive spending/actual savings than the task lights/powerstrips.

From: McAteer, Michael L.
Sent: Thursday, October 12, 2017 4:04 PM
To: White, Carol S. (US-NBRO-RM); Sevier, Mark; Ferris, Gerald Jr; Henschel, Rachel; Coughlin, Thomas J. Jr.; Newberger, Jeremy J.; Patel, Dinesh
Subject: RE: An unfortunate answer to Dinesh's question on the change in Navy BCR

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Agreed. Mark- we can work through this together.

Sent from my iPad

Tom Coughlin
Manager, Technical Strategy & Policy | National Grid
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thomas.coughlin@nationalgrid.com<mailto:thomas.coughlin@nationalgrid.com>
www.nationalgrid.com<http://www.nationalgrid.com/>
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-- Do not delete or change any of the following text. --

Join me now in my WebEx Personal Room.

Join WebEx meeting
https://usnationalgrid.webex.com/join/thomas.coughlin | 592 764 622

Join by phone
+44-121-210-9045 UK Birmingham Toll
+1-866-662-9987 US Toll Free
Access code: 592 764 622
Global call-in numbers<https://usnationalgrid.webex.com/cmp3100/webcomponents/widget/globalcallin/globalcallin.do?siteurl=usnationalgrid&serviceType=MC&ED=562910082&tollFree=1> | Toll-free calling restrictions<https://www.webex.com/pdf/tollfree_restrictions.pdf>

Can't join the meeting? Contact support.<https://usnationalgrid.webex.com/mc>

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/20/2017 7:37:45 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Interactivity of projects at Navy: update after friday call

Flag: Flag for follow up

Hi –

Jeff described that the discussion with Navy wasn't a SEMP as other customers have, but was the 'revolving fund' issue with them not being able to deal with incentive checks. Jeff also described that the Navy has been doing EE measures all along, though often not with NGrid, since it wasn't worth their time to deal with our paperwork / process on smaller projects. I'm still concerned about unloading the CHP with future EE projects, but it sounds like the gross potential might be lower than worst case, and we aren't in the process of setting up SEMP expectations at the same time as a CHP / fuel switching measure.
I attempted to help Jeff understand that the max & average kW values he sees in Indemand and gridforce aren't what CHP should be designed with, and the minimum kW and therm usage are the design constraint, such that ~7 MW might be too big of a unit. He seemed to get the idea, and did not think the Navy had committed to a kW size (as sometimes happens due to customer/vendor conversation prior to NGrid technical involvement).
I also went back and forth through the 'we say yes in concept now, but may need to say no, or smaller later after TA study' topic, trying to make sure everyone knew what might come up later. Jed seemed a little offended, since he's been saying this type of thing for a while, but Jeff seemed to be treating this like new information, and had thought that Jed already had the info we needed, so it seemed worth discussing amongst the group.
We agreed that Jeff & Jed would walk Navy through these issues on their regular Monday call, where the discussion will be that the numbers we were given appear to pass our BC test, but the TA study outcome could modify the positive BC test response. Apparently, the BC model outcome I had taken as 'yes, we can incentivize the project' message to the Navy, was more 'yes, there is a potential we can incentivize the project' as opposed to 'no, definitely not', meaning there was no reason Navy should invest in a TA study if there was no possibility of an incentive.
At this point of providing feedback to the customer that a CHP might be incentivizable, it seems to me it would be better to wait for vetted savings values and costs before going through the go/no-go BC passage option discussion, since vetted values might return a reasonably obvious situation. We would still try to get distribution benefit information, etc. in preparation for a future go/no-go BC convo, but the customer near term deadline of TA study or not has been met with the list of BC test passing possibilities we've discussed.

Mark

-----Original Appointment-----
From: Henschel, Rachel
Sent: Wednesday, October 18, 2017 9:02 PM
To: Sevier, Mark
Subject: Declined: Interactivity of projects at Navy
When: Friday, October 20, 2017 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: phone

This is a good catch. Is it the right time to get Andrea involved or premature?

I'll be in an all day mtg Friday. Let me know how it goes.

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 10/23/2017 1:26:31 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: Navy CHP

Nice job

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Monday, October 23, 2017 8:41 AM
To: Sevier, Mark; Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.; Henschel, Rachel; Lonergan, Beth; Dipetrillo, Mark
Subject: Navy CHP

Hi folks,

I think we need to wipe the slate and discuss what was originally asked on this project and perhaps define a few roles of the parties involved.
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We came to strategy to ask if we could use the lease payment as part of the Non Electric Benefits. After many weeks of meeting and conversing what I heard was that one of four paths could be used to take the next step. The next step is begin a formalized TA study phase which has its own filters and mine fields. I believe in the Technical Review phase all the assumptions and technical hurdles that we discussed will be carefully sorted by Dinesh and the TR's including the proper sizing all to ensure the integrity of the CHP program/custom projects.

I believe we have Fred and Jeff who can easily handle the customer's expectation on whether an incentive is offered at this moment in time or not, as well.

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I think we should go to the directors and ask for this line of approval with each fall back for the Non Electric Benefit parts of the BCR run in order to take the next step. Again review the four options once TR has finalized and inform directors which item we utilized in the end.

I hope this clears up any confusion that was created last week.

Thanks

Jed

Gerald (Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Sevier, Mark
Sent: Friday, October 20, 2017 10:53 PM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.
Subject: RE: Navy CHP

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Mark

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Sent: Friday, October 20, 2017 6:03 PM
To: Sevier, Mark
Cc: Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.
Subject: Re: Navy CHP

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Thanks Jed

On Oct 20, 2017, at 5:42 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com<mailto:Mark.Sevier@nationalgrid.com>> wrote:

Jeff-

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From: Dunham, Jeffrey B.
Sent: Friday, October 20, 2017 4:19 PM
To: Ferris, Gerald Jr; Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: Paine, Fred
Subject: Navy CHP

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Has there been any progress made on confirming a date to present the choices to the directors?

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 10/23/2017 3:44:02 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]
Subject: Navy CHP general case economics.xlsx
Attachments: Navy CHP general case economics.xlsx

I think this adequately reflects the inputs. I don't have any more time to spend on digging anymore information up on this project.

Let's move forward with the extra Non Electric Benefits approvals.

Navy CHP general case economics....

Thanks

Jed

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/23/2017 2:59:02 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: Navy CHP
Attachments: Navy CHP general case economics.xlsx

Jed –

From what Jeff sent, the customer's gas usage at the account we expect the CHP to serve was:

[redacted]

Which calls into question the 2.06M therms of CHP recovered energy, by a significant margin, and brings up the question: is the CHP expected to supply ALL of the thermal energy, with no boiler usage?

On the electric side, the CHP would have to deliver an average of 8 MW for 5,500 hrs to reach ~43 GWh with 2% parasitic losses; the gas bills suggest that the 8 MW average would need to be higher since there are appear to be fewer full load hours, combined with the question of the CHP providing all of the thermal energy.

In light of the above information, it seems to me that we don't know if we're getting the 'right' information for a proper screening. It does not seem unreasonable to me that I attempt to vet numbers in a basic way, since the history with CHP projects is that we often get overly optimistic or incorrect values from project proponents; the Navy CHP was the last time I will attempt to BC test a CHP project without first assessing the inputs. You've said yourself that my simple CHP calculation tool is doing about as well as TA studies, so is an obvious early & quick step to take before getting into NEIs and complex policy questions. Please work with BQ & the customer to come up with an explainable simple working model of usage & efficiencies:

Navy CHP general case economics....

As it relates to your numbers below, after reviewing the hours of operation more closely, in my most recent BC I changed the winter onpk to 46% and winter offpk to 54%. Also noteworthy is that changing the negative gas from 'year round' to 'heating season' therms in the 2017 RI CHP tool makes the project pass by a wide margin –this is almost certainly an error in the 2017 RI CHP tool. In my last BC screening, I used year-round / DHW with the thought that the usage was base load; on the call proposed for last Friday, I had hoped to discuss which form of negative gas was most appropriate, as that has a significant bearing on the BCR since negative gas is the largest dis-benefit by far.

Mark

From: Ferris, Gerald Jr
Sent: Monday, October 23, 2017 8:41 AM
To: Sevier, Mark; Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.; Henschel, Rachel; Lonergan, Beth; Dipetrillo, Mark
Subject: Navy CHP

Hi folks,

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Thanks

Jed

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-----Original Message-----
From: Sevier, Mark
Sent: Friday, October 20, 2017 10:53 PM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.
Subject: RE: Navy CHP

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Sent: Friday, October 20, 2017 6:03 PM
To: Sevier, Mark
Cc: Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.
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From: Dunham, Jeffrey B.
Sent: Friday, October 20, 2017 4:19 PM
To: Ferris, Gerald Jr; Coughlin, Thomas J. Jr.; Sevier, Mark
Cc: Paine, Fred
Subject: Navy CHP

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/26/2017 5:16:39 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Lonergan, Beth [beth.lonergan@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]
Subject: RE: Navy CHP revised BCR
Attachments: Navy CHP RI 2018 Electric Screening Model_v2.xlsx

Hi –

Attached is a revised 2018 BCR screening, based on including oil & gas use that Navy Building 7 used in winter 2016-17 (on gas overview tab), which roughly adds up to the thermal recovery value (200/205) Jed got from BQ in their model.

Navy CHP RI 2018 Electric Screenin...

Notably, I included a scoping level BCR for 'gas DHW' and 'gas Other' avoided cost values, which also highlight the relative $ values of the benefits using conditional formatting. It is easy to see that the largest values are the positive electric (green highlight) and negative gas (red highlight) benefits, and that the project BCR will be less sensitive to project cost, especially given the $0.80/$1 economic benefit being used in 2018. The net effect is that since electric & gas benefits will be tied together with the CHP, the proportion of electric to gas benefits is most important. I also attempted to estimate system efficiency, with the caveat that recent utility use at the site may be slightly different than what is probably TMY data used in the BQ estimate; the Taurus 70 gas turbine spec sheet shows ~35% electric efficiency, which is probably on the optimistic side of things, but appears to be in the same ballpark. There is also the question of (over)sizing, which seems more common than not in large CHPs, but can be discussed once we have more details / the BQ study.

Apologies if I have not come across well, wanting more details on operation / oil use, etc., but I view a significant component of my preliminary BCR screening contribution as including knowledge of the different values for gas DHW / gas Other /oil, etc. in relation to how the vendor & customer expect this CHP will operate and past utility usage, which fortunately became much clearer to me yesterday.

Given the BCR of 1.35 to 1.58, I maintain my position that discussing the lease payment situation with directors is not worthwhile at this time, since it may be academic in light of the 'known 2018 benefits' situation. Beyond that, I don't necessarily agree with putting project 'costs / payments' on both sides of the BC equation, so I may end up being less than helpful in the lease payment discussion as it is being proposed. IMO, the project costs should only show up in one place in the BCR equation, and should either be taken from the perspective of the customer or the project developer, but not a mixture of the two. The project developer is 'paying' $17.5M in the form of a CHP to rent the land for 20 yrs, so deducting a land lease payment that is not being made to the developer does not make sense to me. The other perspective is that the Navy is 'paying' $737k/yr in potential lost income from leasing the land for some other purpose to purchase a CHP, which was what I was thinking when I mentioned this approach to Jeremy on the call, and would be the direction I would pursue if the need arises. In no case do I see a reason to deduct the lease payments from the project costs, since I don't see either party experiencing that sort of cash flow.

As the energy values get more firmed up with TA study work, we can also try to determine avoided distribution system benefits, which may further improve the BCR while TA study work might diminish them. I understand that NGrid will be 'past the point of saying no' on an incentive, but IMO we realistically crossed the point where that would have been comfortable a week or two ago, so I don't see a benefit to spending director time on the lease payment question now versus later, when it seems likely it might not make a difference in this project, and a future large custom project would almost certainly have a somewhat different situation.

Mark

From: Ferris, Gerald Jr
Sent: Monday, October 23, 2017 8:41 AM
To: Sevier, Mark; Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.; Henschel, Rachel; Lonergan, Beth; Dipetrillo, Mark
Subject: Navy CHP

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Sent: Friday, October 20, 2017 10:53 PM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Paine, Fred; Coughlin, Thomas J. Jr.
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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 10/26/2017 2:34:29 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Navy CHP progress update on outstanding action items

Hi –

Yes, fortunately I made the Navy call and subsequently got other questions answered when Jeff called the customer (John Reichert), and then brought Tom Dione down to discuss the gas supply side of the project. In talking with John, he mentioned that Navy Station Newport has already reached the Navy's goal of 50% energy use reduction vs a 2003 baseline. John also said he appreciated all of NGrid's help with past projects, and he and Jeff went on to discuss a list of projects for 15-20 mins after my questions were answered, so I have a warmer feeling that the Navy has been working on EE consistently, and not just dropping in a CHP to start.

From what I can tell, there will be significant oil savings (over 30,000 MMBtus/yr) that had been lumped into gas BTUs, where avoided oil cost is more than 2x gas, so the oil savings improves the BCR. I'm working on an updated version.

Everyone else still wants to ask Directors about a lease payment NEI that I think will increase confusion / lead to more questions than answers, where I don't think that is a good use of staff time at this point. Jed imagines that will be a simple question and he doesn't want to have to deal with that question later when Dinesh has a chance to 'critique' the energy estimate and CHP sizing and the project potentially drops below BCR>1. It seems to me it would be more efficient to pursue the TA study & review at the same time as trying to get distribution benefits, etc. where I don't see much BCR risk in supporting the project with an incentive in any case, where from the outside we're looking at a combination EE/RE project that also moves the customer away from using oil, unless there is a national security issue that makes using oil a good thing to be able to do.

Mark

From: Henschel, Rachel
Sent: Thursday, October 26, 2017 9:52 AM
To: Sevier, Mark
Subject: Fwd: Navy CHP progress update on outstanding action items

Hey,

I'm in providence today...I'm going to get a full court press on navy. What do I need to know to accurately depict your position?

Heard from Jeff you spent 2.5 hours together yesterday.

Good morning!

Rachel

Begin forwarded message:

> **From:** "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
> **Date:** October 25, 2017 at 1:30:38 PM EDT
> **To:** "Henschel, Rachel" <Rachel.Henschel@nationalgrid.com>
> **Subject: RE: Navy CHP progress update on outstanding action items**

Hmmm Marks with me :)

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Henschel, Rachel
Sent: Wednesday, October 25, 2017 1:20 PM
To: Sevier, Mark
Cc: Dunham, Jeffrey B.; Paine, Fred; Ferris, Gerald Jr; Dipetrillo, Mark; Moshier, Andrea; Coughlin, Thomas J. Jr.
Subject: Re: Navy CHP progress update on outstanding action items

Thanks for reminder. I'm with Mark at PUC and may not make it. See you tmrw at hub.
-Rachel

On Oct 25, 2017, at 11:22 AM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:

> I"m at the RI PUC 3 yr plan hearing, so may not be able to make this call.
>
> _____
>
> From: Dunham, Jeffrey B.
>
> Sent: Wednesday, October 25, 2017 9:13 AM
>
> To: Paine, Fred; Ferris, Gerald Jr; Sevier, Mark; Dipetrillo, Mark; Moshier, Andrea; Coughlin, Thomas J. Jr.; Henschel, Rachel
>
> Subject: FW: Navy CHP progress update on outstanding action items
>
> When: Wednesday, October 25, 2017 1:30 PM-2:00 PM.
>
> Where: 1 866 662 9987 code 92406558#
>
> Just a friendly reminder about our call this afternoon
>
> -----Original Appointment-----
>
> From: Dunham, Jeffrey B.
>
> Sent: Thursday, October 12, 2017 1:47 PM
>
> To: Dunham, Jeffrey B.; Henschel, Rachel; Paine, Fred; Sevier, Mark; Ferris, Gerald Jr; Coughlin, Thomas J. Jr.; Dipetrillo, Mark; Moshier, Andrea
>
> Subject: Navy CHP progress update on outstanding action items

When: Wednesday, October 25, 2017 1:30 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: 1 866 662 9987 code 92406558#

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 11/8/2017 11:09:35 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: Navy CHP for Tims report

Fred

Hopefully this is what you were looking for to put in the report

Naval Station Newport is developing a project in which they will lease land to a company to install a 20MW solar farm (not for Navy consumption). In lieu of payment for the land lease the company will install a 7.5MW CHP (combined heat and power engine). New ground is being broken with how the cost effectiveness of the project is being reviewed by NGrid. The renewable benefit of the solar farm will be factored in to the cost effectiveness of the project. The cost of the CHP is approximately [redacted] Construction is anticipated in 2018 if everything goes accordingly

Jeff

Jeffrey Dunham
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Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Paine, Fred
Sent: Wednesday, November 08, 2017 3:43 PM
To: Dunham, Jeffrey B.
Subject: FW: Meeting to discuss Navy CHP NEI proposal.

Please write something up on the CHP for the Tim report illustrating the use of new BCR benifets and creativity on this project

---

From: Newberger, Jeremy J.
Sent: Wednesday, November 08, 2017 2:20 PM
To: Coughlin, Thomas J. Jr.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Tom,

Here is my response:

1) On the local distribution benefits, distribution planning may have a recent study or area plan that identifies the local distribution value. If so, we can avoid doing a site specific study which, as you note, would not be on our time frame.

2) There is a well-established and documented value for economic development benefits in Rhode Island, tied to the dollar value of the incentive. Rachel or someone in her group can provide this.
3) There is also a well-established discount rate for EE in RI which I recommend that you use.
4) Your question below on the "use of the NPV of the annual (lease) payment" does not specify how you proposed it be used. Would you please clarify this?

--Jeremy

Director, Massachusetts
Strategic Business, Policy & Evaluation
nationalgrid
781-907-1548

From: Coughlin, Thomas J. Jr.
Sent: Tuesday, November 07, 2017 11:30 AM
To: Newberger, Jeremy J.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

All:

I've been going through the chain of e-mails on this project. I want to avoid having a meeting today, if at all possible. Let me try to accomplish that.

We have agreed that, when ready, we will work with our distribution asset people to include local distribution benefits into our screening. Unfortunately, we won't have a process in place in time to make a commitment to this project.

As a refresher to some, the Navy is leasing property to a solar developer. In lieu of a cash payment, the developer is funding the installation of a CHP unit that the Navy will own and maintain. The total installed cost of the CHP is around [redacted] The net present value of the lease over its term is less than that [redacted] The term is 35 years, I believe.

What I propose is that we screen the project using the screening tool we currently use in the field. We'll screen against the cost of the project ($17M). I also propose that we use the typical NEI's common to this project

Cost of natural gas consumed (estimated to be the cost [redacted]
Cost of O&M (estimated to be [redacted]
Economic benefits if these can be quantified.
The NPV of the annual payment to the Navy over the life of the measure (15 years). The monthly payment is [redacted]

Carol, Michael, Rachel and Jeremy.
What we need your approval on is the use of the NPV of the annual (lease) payment in concept. Of course, we'll have to come up with an appropriate discount rate. We just need your opinion of the concept.

I am going to cancel today's meeting.

Tom Coughlin
Manager, Technical Policy | **National Grid**
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| Cell ☎ 978.501.3689 | Fax 🖷 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

-----Original Appointment-----
From: Coughlin, Thomas J. Jr.
Sent: Monday, November 06, 2017 4:14 PM
To: Coughlin, Thomas J. Jr.; Ferris, Gerald Jr; Moshier, Andrea; Newberger, Jeremy J.; Henschel, Rachel; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.; White, Carol S. (US-NBRO-RM)
Subject: Meeting to discuss Navy CHP NEI proposal.
When: Tuesday, November 07, 2017 1:30 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where:

All:
Sorry I've put this meeting off for so long. This meeting is for the benefit of Carol, Andrea, Mark D, Jeremy and Rachel. Mark S, Jed and I would like your comments and feedback on how we propose to treat NEI's for this project.
-- Do not delete or change any of the following text. --

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 11/9/2017 4:22:04 PM
To: George, Caleb [caleb.george@nationalgrid.com]
Subject: Re: Local Deferral Value for RI CHP -- Navy

Sounds good

Thanks Jed

On Nov 9, 2017, at 10:09 AM, George, Caleb <caleb.george@nationalgrid.com> wrote:

> Probably not, unless you want something more than what I provided below.
>
> Ryan had a feeling there was none, and Jack confirmed it, so I believe that's it, right?
>
> ---
> **From:** Ferris, Gerald Jr
> **Sent:** Wednesday, November 08, 2017 3:44 PM
> **To:** George, Caleb
> **Subject:** RE: Local Deferral Value for RI CHP -- Navy
>
> So do we need to meet?
>
> Gerald (*Jed*) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
> ---
> **From:** George, Caleb
> **Sent:** Wednesday, November 08, 2017 3:37 PM
> **To:** Ferris, Gerald Jr
> **Subject:** RE: Local Deferral Value for RI CHP -- Navy
>
> Sure, let's say Tuesday if you want.
>
> But I checked with Jack who completed the Newport area study, and we don't think there is any cost avoidance for the projects.
>
> The CHP won't be running during peak load times (Summer) and the PV would only supply some percentage of it's nameplate at peak load times, which is hard to gauge, but still wouldn't avoid the needed changes from the study.
>
> ---
> **From:** Ferris, Gerald Jr

Sent: Tuesday, November 07, 2017 3:02 PM
To: George, Caleb
Subject: RE: Local Deferral Value for RI CHP -- Navy

So now that the dust settled do you want to schedule a call next week sometime?

Monday 13th afternoon or any time on Tuesday the 14th?

Gerald (*Jed*) Ferris
NE CHP Project Manager
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Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: George, Caleb
Sent: Thursday, October 26, 2017 4:38 PM
To: Ferris, Gerald Jr
Subject: RE: Local Deferral Value for RI CHP -- Navy

So I am a bit tied up at the moment, I can probably do a call Monday or tomorrow if needed. We do have a bit of work planned/going on for the Aquidneck Island area.

Just so I understand correctly, this is going to be on the Navy side of the Navy substation, right?

Forgive my ignorance, but what exactly does cost avoidance mean? Like, what dline projects could be deferred or avoided based on this generation amount? And therefore what is that savings (ie the cost of the projects). Just want to be clear as I start to delve into this.

From: Ferris, Gerald Jr
Sent: Thursday, October 26, 2017 2:07 PM
To: George, Caleb
Subject: FW: Local Deferral Value for RI CHP -- Navy

I am in Providence today and Hopedale tomorrow if you want to discuss.

Ha ha ha

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
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Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Constable, Ryan
Sent: Thursday, October 26, 2017 1:39 PM
To: Ferris, Gerald Jr; George, Caleb
Cc: Sevier, Mark; Dunham, Jeffrey B.; Prifti, Elton
Subject: RE: Local Deferral Value for RI CHP -- Navy

Yes work with Caleb.

Caleb, talk with Jack. My guess is there is no cost avoidance. If there is, I want to see the analysis.

Thanks,
Ryan

From: Ferris, Gerald Jr
Sent: Thursday, October 26, 2017 1:25 PM
To: Constable, Ryan; George, Caleb
Cc: Sevier, Mark; Dunham, Jeffrey B.
Subject: RE: Local Deferral Value for RI CHP -- Navy

Hi Ryan,

I heard that you got a promotion and that Caleb may be backfilling your role on this request. Would you mind if I reached out to him on it?

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Ferris, Gerald Jr
Sent: Monday, October 23, 2017 3:03 PM
To: Constable, Ryan
Cc: Sevier, Mark; Dunham, Jeffrey B.
Subject: FW: Local Deferral Value for RI CHP -- Navy

Hi Ryan,

Mark Sevier and Rachel Henschel asked me to reach out to you about the cost avoidance if any that a 7-8 MW Gas Turbine installed at the Naval Newport Base would incur to offset some of their load. The Turbine would run approximately through the months of October thru April.

In conjunction with that project, separately 1MW, 10 MW and 10 MW totaling 21 MW of Solar would also be installed in the same vicinity located at 0 Burma Rd, Middletown RI. WR 231833449, 23183024, 23180819.

Could you return the cost avoidance of both projects (Cogen and Solar) separately and together?

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Sevier, Mark
Sent: Tuesday, October 17, 2017 3:37 PM
To: Ferris, Gerald Jr
Subject: FW: Local Deferral Value for RI CHP -- Navy

Hi –

Hopefully you know enough about the Navy project to talk to Ryan about distribution benefits...not sure if Ryan deals with the gas distribution system too, or if we're considering that part of the question; it sounds like gas changes might be customer driven beyond the CHP, but I don't know.

Mark

From: Foley, Lindsay
Sent: Tuesday, October 17, 2017 10:48 AM
To: Henschel, Rachel; Constable, Ryan
Cc: Ferris, Gerald Jr; Sevier, Mark; Chase, Matthew; George, Caleb
Subject: RE: Local Deferral Value for RI CHP -- Navy

Hi Rachel and Mark,

Someone on Ryan's team should be able to help in determining the impact of this project on the distribution system. That is, together you should be able to determine what distribution projects, if any, would be deferred through this effort, how long they'd be deferred and the typical cost of those investments.

Once you have that information, reach out to Matt and cc me to get help with determining the net present value of that deferral for each year it is pushed out.

Thanks,
Lindsay

From: Henschel, Rachel
Sent: Monday, October 16, 2017 9:16 PM
To: Foley, Lindsay; Constable, Ryan
Cc: Ferris, Gerald Jr; Sevier, Mark
Subject: Local Deferral Value for RI CHP -- Navy

Lindsay & Ryan,

The Navy is considering a comprehensive project that involves both a 7 MW CHP and a 21 MW solar project. The EE plan requires us to get a local deferral value for CHP above 1 MW to use in screening. Do you have folks on your teams that Jed and Mark can work with to get a preliminary value or to understand what it would take to get this value?

Jed is the program manager for CHP and Mark is the RI C&I evaluator. Both are working on screening for the Navy. They have a lot more information about the project including the operation hours and locations. It's quite complicated. This is preliminary screening so that the Navy can know that Grid will incent the CHP so they can move on to the next phase which is the interconnection study and then the TA study. Mark is trying to screen this under the new RI Test so we are interested in the deferral value of both the CHP and the solar (as separate values).

We do need a preliminary value pretty quickly – the Navy is trying to move forward with their studies.

Please let us know.

Thanks,
Rachel

~~~~~~~~~~~~~~~~~~~~~

Rachel Henschel
Manager, Rhode Island Strategic Business, Policy & Evaluation
National Grid
781-907-1555 (w)
Take the Rhode Island Energy Challenge
~~~~~~~~~~~~~~~~~~~~~

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 11/9/2017 3:39:39 PM
To: Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; White, Carol S. (US-NBRO-RM) [carol.s.white@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; McAteer, Michael L. [michael.mcateer@nationalgrid.com]; Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

To Carol's question:

I would agree that we couldn't double-claim distribution benefits, and would need to remove the base benefit if there was a specific benefit case considered, but if Ryan's first thought is that there is no specific distribution benefit, my guess is that this question won't become important.

To Tom's question below:

For the 2018 BCR I've calculated for the Navy CHP project, I created a manual custom screening of simple benefit & cost addition and division, since the 2018 RI custom screening tool has not been created yet.

For 2018 in RI, the economic benefit could either be 'behind the scenes' in the screening tool like the avoided cost table, or could show up in an NEI or new field, depending on what makes the most sense for how the tool is configured.

In any event, the economic benefit was used throughout the entire 2018 RI plan, and is an accepted contributor to benefits in custom / prescriptive / residential / C&I / electric / gas.

Mark

From: Coughlin, Thomas J. Jr.
Sent: Thursday, November 09, 2017 10:29 AM
To: White, Carol S. (US-NBRO-RM); Henschel, Rachel; Sevier, Mark
Cc: Paine, Fred; McAteer, Michael L.; Newberger, Jeremy J.; Dipetrillo, Mark; Ferris, Gerald Jr; Moshier, Andrea
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Carol – I'm just learning about local distribution benefits. I'll defer to Rachel and Mark S.

Tom Coughlin
Manager, Technical Policy | **National Grid**
| Office ☎ 781.907.1582 |
| Cell ☎ 978.501.3689 | Fax 🖷 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
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From: White, Carol S. (US-NBRO-RM)
Sent: Thursday, November 09, 2017 10:09 AM

To: Coughlin, Thomas J. Jr.; Sevier, Mark; Newberger, Jeremy J.; Dipetrillo, Mark; Henschel, Rachel; Ferris, Gerald Jr; Moshier, Andrea
Cc: Paine, Fred; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

I think it would be wise for us to confirm that our stakeholders support our counting these benefits.

On the distribution system benefits, aren't we already including an avoided distribution cost? If we use a site specific value for projects like this, then wouldn't we need to adjust the value we use for other projects to ensure we aren't overstating the benefits elsewhere?

Carol S. White
Director, Program Operations
National Grid
40 Sylvan Road
Waltham, MA 02451
Phone: 781-907-1566
Cell: 508-212-7508
carol.s.white@nationalgrid.com

From: Coughlin, Thomas J. Jr.
Sent: Thursday, November 09, 2017 9:57 AM
To: Sevier, Mark; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Dipetrillo, Mark; Henschel, Rachel; Ferris, Gerald Jr; Moshier, Andrea
Cc: Paine, Fred; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Jeremy,

I must admit, I don't use the screening tool on a regular basis. Upon review of the tool, I see we have an input for "annual" benefits. We would propose to enter the annual lease payment of [redacted] as an electric annual benefit. I assume the tool uses the NPV of the benefit using the discount rate Mark provided and over the life of the measure (20 years).

Question for Jeremy: Is it appropriate to use this NEI?

Questions for Mark S.- Is the economic benefit also entered as an NEI? Are we using economic benefits now when we screen custom projects?

Carol/Rachel – your thoughts?

The comment from Ryan Constable makes me ask: do we have a process/method to get a definitive "go" or "no-go" for local distribution benefits? (Is there cost avoidance? if so, who quantifies this?) If we don't have a process/method, we should proceed on this project without it but add it in later if it exists. Racheal has re-enforced an obligation to the regulators for us to examine these benefits.

Mark D, Jed and Andrea, :

Once everybody has weighed in, I think we have enough information to proceed with "preapproved as viable" as described in the attached from Jed.

<< Message: Navy CHP >>

Tom Coughlin
Manager, Technical Policy | **National Grid**
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| Cell ☎ 978.501.3689 | Fax 🖷 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

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Sent: Wednesday, November 08, 2017 3:47 PM
To: Newberger, Jeremy J.; Coughlin, Thomas J. Jr.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Additional information in response to Jeremy's responses below:

1) As Ryan Constable was deferring the work of reviewing the potential distribution benefits to a co-worker, he had this comment: "My guess is there is no cost avoidance. If there is, I want to see the analysis."
2) The 2018 RI economic development benefit is $0.80 per $1 of project cost, yielding an economic benefit of [redacted] project cost, which is also to say that the influence of the project cost is small relative to the electric and gas benefit streams that are in the scale of [redacted]
3) In the avoided cost table used in the 2018 RI planning tool, the nominal discount rate minus inflation yields a real discount rate of 0.27% The land lease term is apparently 35 yrs and the proposed CHP measure life is 20 yrs, so term used would need to be decided upon.

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Sent: Wednesday, November 08, 2017 2:20 PM
To: Coughlin, Thomas J. Jr.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Tom,

Here is my response:

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Director, Massachusetts
Strategic Business, Policy & Evaluation
nationalgrid
781-907-1548

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Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

All:

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Subject: Meeting to discuss Navy CHP NEI proposal.
When: Tuesday, November 07, 2017 1:30 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where:

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 11/9/2017 3:27:07 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: FW: Meeting to discuss Navy CHP NEI proposal.

As I expected based on past similar experiences, the list of questions is growing faster than it is shrinking, suggesting this isn't going to be an easy answer to get.

I'm not suggesting to forego this process because I like being unpopular, I'm suggesting that to save everyone time / heartache when the most important values might make this process irrelevant.

Mark

From: White, Carol S. (US-NBRO-RM)
Sent: Thursday, November 09, 2017 10:09 AM
To: Coughlin, Thomas J. Jr.; Sevier, Mark; Newberger, Jeremy J.; Dipetrillo, Mark; Henschel, Rachel; Ferris, Gerald Jr; Moshier, Andrea
Cc: Paine, Fred; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

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Carol S. White
Director, Program Operations
National Grid
40 Sylvan Road
Waltham, MA 02451
Phone: 781-907-1566
Cell: 508-212-7508
carol.s.white@nationalgrid.com

From: Coughlin, Thomas J. Jr.
Sent: Thursday, November 09, 2017 9:57 AM
To: Sevier, Mark; Newberger, Jeremy J.; White, Carol S. (US-NBRO-RM); Dipetrillo, Mark; Henschel, Rachel; Ferris, Gerald Jr; Moshier, Andrea
Cc: Paine, Fred; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Jeremy,

I must admit, I don't use the screening tool on a regular basis. Upon review of the tool, I see we have an input for "annual" benefits. We would propose to enter the annual lease payment of [redacted] as an electric annual

benefit. I assume the tool uses the NPV of the benefit using the discount rate Mark provided and over the life of the measure (20 years).

Question for Jeremy: Is it appropriate to use this NEI?

Questions for Mark S.- Is the economic benefit also entered as an NEI? Are we using economic benefits now when we screen custom projects?

Carol/Rachel – your thoughts?

The comment from Ryan Constable makes me ask: do we have a process/method to get a definitive "go" or "no-go" for local distribution benefits? (Is there cost avoidance? if so, who quantifies this?) If we don't have a process/method, we should proceed on this project without it but add it in later if it exists. Racheal has re-enforced an obligation to the regulators for us to examine these benefits.

Mark D, Jed and Andrea, :

Once everybody has weighed in, I think we have enough information to proceed with "preapproved as viable" as described in the attached from Jed.

<< Message: Navy CHP >>

Tom Coughlin
Manager, Technical Policy | **National Grid**
| Office ☎ 781.907.1582 |
| Cell ☎ 978.501.3689 | Fax 🖷 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

From: Sevier, Mark
Sent: Wednesday, November 08, 2017 3:47 PM
To: Newberger, Jeremy J.; Coughlin, Thomas J. Jr.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Additional information in response to Jeremy's responses below:

1) As Ryan Constable was deferring the work of reviewing the potential distribution benefits to a co-worker, he had this comment: "My guess is there is no cost avoidance. If there is, I want to see the analysis."
2) The 2018 RI economic development benefit is $0.80 per $1 of project cost, yielding an economic benefit of [redacted] project cost, which is also to say that the influence of the project cost is small relative to the electric and gas benefit streams that are in the scale of [redacted]
3) In the avoided cost table used in the 2018 RI planning tool, the nominal discount rate minus inflation yields a real discount rate of 0.27% The land lease term is apparently 35 yrs and the proposed CHP measure life is 20 yrs, so term used would need to be decided upon.

From: Newberger, Jeremy J.

Sent: Wednesday, November 08, 2017 2:20 PM
To: Coughlin, Thomas J. Jr.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Tom,

Here is my response:

1) On the local distribution benefits, distribution planning may have a recent study or area plan that identifies the local distribution value. If so, we can avoid doing a site specific study which, as you note, would not be on our time frame.
2) There is a well-established and documented value for economic development benefits in Rhode Island, tied to the dollar value of the incentive. Rachel or someone in her group can provide this.
3) There is also a well-established discount rate for EE in RI which I recommend that you use.
4) Your question below on the "use of the NPV of the annual (lease) payment" does not specify how you proposed it be used. Would you please clarify this?

--Jeremy

Director, Massachusetts
Strategic Business, Policy & Evaluation
nationalgrid
781-907-1548

From: Coughlin, Thomas J. Jr.
Sent: Tuesday, November 07, 2017 11:30 AM
To: Newberger, Jeremy J.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

All:

I've been going through the chain of e-mails on this project. I want to avoid having a meeting today, if at all possible. Let me try to accomplish that.

We have agreed that, when ready, we will work with our distribution asset people to include local distribution benefits into our screening. Unfortunately, we won't have a process in place in time to make a commitment to this project.

As a refresher to some, the Navy is leasing property to a solar developer. In lieu of a cash payment, the developer is funding the installation of a CHP unit that the Navy will own and maintain. The total installed cost of the CHP is around [redacted] The net present value of the lease over its term is less than that [redacted] The term is 35 years, I believe.

What I propose is that we screen the project using the screening tool we currently use in the field. We'll screen against the cost of the project [redacted] I also propose that we use the typical NEI's common to this project

Cost of natural gas consumed (estimated to be the cost [redacted]
Cost of O&M (estimated to be [redacted]
Economic benefits if these can be quantified.
The NPV of the annual payment to the Navy over the life of the measure (15 years). The monthly payment is [redacted]

Carol, Michael, Rachel and Jeremy.
What we need your approval on is the use of the NPV of the annual (lease) payment in concept. Of course, we'll have to come up with an appropriate discount rate. We just need your opinion of the concept.

I am going to cancel today's meeting.

Tom Coughlin
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-----Original Appointment-----
From: Coughlin, Thomas J. Jr.
Sent: Monday, November 06, 2017 4:14 PM
To: Coughlin, Thomas J. Jr.; Ferris, Gerald Jr; Moshier, Andrea; Newberger, Jeremy J.; Henschel, Rachel; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.; White, Carol S. (US-NBRO-RM)
Subject: Meeting to discuss Navy CHP NEI proposal.
When: Tuesday, November 07, 2017 1:30 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where:

All:
Sorry I've put this meeting off for so long. This meeting is for the benefit of Carol, Andrea, Mark D, Jeremy and Rachel. Mark S, Jed and I would like your comments and feedback on how we propose to treat NEI's for this project.
-- Do not delete or change any of the following text. --

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 11/10/2017 7:17:07 PM
To: White, Carol S. (US-NBRO-RM) [carol.s.white@nationalgrid.com]
CC: Sevier, Mark [mark.sevier@nationalgrid.com]; McAteer, Michael L. [michael.mcateer@nationalgrid.com]; Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: Re: Meeting to discuss Navy CHP NEI proposal.

We have not studied the project yet. We are using estimates from the Navy's vendor that appear inline but it's not finalized at this point so we cannot make that judgement call.

Thanks Jed

> On Nov 10, 2017, at 2:07 PM, White, Carol S. (US-NBRO-RM) <Carol.S.White@nationalgrid.com> wrote:
>
> If we are in agreement that this project is cost-effective, I would support approving it. These other benefits would give us a cushion for actual performance falling short of expected performance, but unlike MA, the benefits don't impact shareholder incentives. If this were a MA project, I'd argue to quantify as many benefits as is reasonable to attribute to the project. It does matter there.
>
> Sent from my iPad
>
>> On Nov 9, 2017, at 9:43 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>>
>> Based on the energy and cost information we have at this point, I came up with a 2018 RI BCR of 1.58 or 1.35 depending on which gas type (DHW or other) we decide upon, so there is a significant chance this project will pass a regular 2018 RI BCR screening without special consideration; I would be happy to walk folks through the screening, if that would help. As of my first attempt at a manual BCR screening, we told the Navy there was a chance a CHP could pass screening, so they are working to get us energy estimates to vet.
>>
>> Given the value of people's time, I think folks should consider whether or not discussing 'NEIs' first makes sense for their schedules in light of the fact we don't have vetted energy values yet, which have a reasonably high chance of making the NEI question irrelevant. Jeff and Jed would like an NEI answer, but I don't think they realize how non-simple this question becomes for the directors, once things diverge from a regular BCR screening, especially without having hard values in equations that can be reviewed. Feel free to correct me, if I mis-speak; my only interest is being efficient with people's time.
>>
>> Thanks,
>> Mark
>> _____
>> From: McAteer, Michael L.
>> Sent: Thursday, November 09, 2017 1:02 PM
>> To: Sevier, Mark
>> Cc: Coughlin, Thomas J. Jr.; White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Ferris, Gerald Jr; Moshier, Andrea
>> Subject: Re: Meeting to discuss Navy CHP NEI proposal.
>>
>> As we land on a methodology and something I mentioned earlier it would be wise to ensure our key stakeholders agree with logic before proceeding to customer approval - M
>>
>> Sent from my iPhone
>>
>> On Nov 9, 2017, at 10:39 AM, Sevier, Mark <Mark.Sevier@nationalgrid.com<mailto:Mark.Sevier@nationalgrid.com>> wrote:
>>
>> To Carol's question:
>>
>> I would agree that we couldn't double-claim distribution benefits, and would need to remove the base benefit if there was a specific benefit case considered, but if Ryan's first thought is that there is no specific distribution benefit, my guess is that this question won't become important.
>> To Tom's question below:
>>
>> For the 2018 BCR I've calculated for the Navy CHP project, I created a manual custom screening of simple benefit & cost addition and division, since the 2018 RI custom screening tool has not been created yet.
>>

>> For 2018 in RI, the economic benefit could either be 'behind the scenes' in the screening tool like the avoided cost table, or could show up in an NEI or new field, depending on what makes the most sense for how the tool is configured.
>>
>> In any event, the economic benefit was used throughout the entire 2018 RI plan, and is an accepted contributor to benefits in custom / prescriptive / residential / C&I / electric / gas.
>>
>> Mark
>>
>>
>> _____
>> From: Coughlin, Thomas J. Jr.
>> Sent: Thursday, November 09, 2017 10:29 AM
>> To: White, Carol S. (US-NBRO-RM); Henschel, Rachel; Sevier, Mark
>> Cc: Paine, Fred; McAteer, Michael L.; Newberger, Jeremy J.; Dipetrillo, Mark; Ferris, Gerald Jr; Moshier, Andrea
>> Subject: RE: Meeting to discuss Navy CHP NEI proposal.
>>
>>
>> Carol – I'm just learning about local distribution benefits. I'll defer to Rachel and Mark S.
>>
>> ---
>> Tom Coughlin
>> Manager, Technical Policy | National Grid
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>> Sent: Thursday, November 09, 2017 10:09 AM
>> To: Coughlin, Thomas J. Jr.; Sevier, Mark; Newberger, Jeremy J.; Dipetrillo, Mark; Henschel, Rachel; Ferris, Gerald Jr; Moshier, Andrea
>> Cc: Paine, Fred; McAteer, Michael L.
>> Subject: RE: Meeting to discuss Navy CHP NEI proposal.
>>
>>
>> I think it would be wise for us to confirm that our stakeholders support our counting these benefits.
>>
>> On the distribution system benefits, aren't we already including an avoided distribution cost? If we use a site specific value for projects like this, then wouldn't we need to adjust the value we use for other projects to ensure we aren't overstating the benefits elsewhere?
>>
>> Carol S. White
>> Director, Program Operations
>> National Grid
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>> Waltham, MA 02451
>> Phone: 781-907-1566
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>> Subject: RE: Meeting to discuss Navy CHP NEI proposal.
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>> Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
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>> Director, Massachusetts
>> Strategic Business, Policy & Evaluation
>> nationalgrid
>> 781-907-1548
>>
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>> To: Newberger, Jeremy J.; Henschel, Rachel; White, Carol S. (US-NBRO-RM)
>> Cc: Ferris, Gerald Jr; Moshier, Andrea; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.
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>> -----Original Appointment-----
>> From: Coughlin, Thomas J. Jr.
>> Sent: Monday, November 06, 2017 4:14 PM
>> To: Coughlin, Thomas J. Jr.; Ferris, Gerald Jr; Moshier, Andrea; Newberger, Jeremy J.; Henschel, Rachel; Sevier, Mark; Paine, Fred; Dipetrillo, Mark; McAteer, Michael L.; White, Carol S. (US-NBRO-RM)
>> Subject: Meeting to discuss Navy CHP NEI proposal.
>> When: Tuesday, November 07, 2017 1:30 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
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>> -- Do not delete or change any of the following text. --
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>>
>>
>>

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 11/13/2017 6:34:51 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: Re: Meeting to discuss Navy CHP NEI proposal.

I would have a conversation with Jed before we just press on without the nei
He thinks Dinish will tear it apart

On Nov 13, 2017, at 12:54 PM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:

> I missed it, why did we decide not to include the "rental revenue "?
>
> -----Original Message-----
> From: Coughlin, Thomas J. Jr.
> Sent: Monday, November 13, 2017 12:48 PM
> To: Sevier, Mark; Ferris, Gerald Jr
> Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
> Subject: RE: Meeting to discuss Navy CHP NEI proposal.
>
> Mark,
>
> Thank you. Whereas we are no longer considering the rental income NEI, I think we can drop the directors from this effort for now (that's why we need their input in the first place).
>
> If Rachel and yourself are o.k. with proceeding with the BC analysis you provided and just for this project, Its time to socialize what we've done with the tech reps. I will ask Jed to set up that meeting.
>
> This might be a good way to introduce the "non-resource" avoided cost component you added here that isn't in our current project level screening.
>
> ---
> Tom Coughlin
> Manager, Technical Policy | National Grid
> | Office 781.907.1582 |
> | Cell 978.501.3689 | Fax ⊇ 781.296.8090 |
> thomas.coughlin@nationalgrid.com
> www.nationalgrid.com
> Please consider the environment before printing this e-mail
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> -----Original Message-----
> From: Sevier, Mark
> Sent: Monday, November 13, 2017 11:58 AM
> To: White, Carol S. (US-NBRO-RM)
> Cc: Ferris, Gerald Jr; McAteer, Michael L.; Coughlin, Thomas J. Jr.; Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
> Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Attached is my current version of the Navy CHP simplified BCR calculation using 2018 RI values, which primarily multiplies values from the 20 yr measure life line of the avoided cost table by the relevant unit to calculate the BC in the simplest format.

I also attempted to estimate the proposed CHP efficiency, based on the vendor's energy values. Earlier there was a discrepancy between NGrid's billed usage and the vendor's thermal load, which I discovered was #4 oil use, and therefore increased the BCR from what I had previously calculated (1.08 using gas DHW value).

Mark

-----Original Message-----
From: White, Carol S. (US-NBRO-RM)
Sent: Friday, November 10, 2017 2:00 PM
To: Sevier, Mark
Cc: Ferris, Gerald Jr; McAteer, Michael L.; Coughlin, Thomas J. Jr.; Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
Subject: Re: Meeting to discuss Navy CHP NEI proposal.

You some compelling arguments, Mark. Could you please provide us with a b/c run for this project that takes into account your perspective, understanding that we will be understating the societal benefits at this point?

Sent from my iPad

> On Nov 10, 2017, at 8:32 AM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>
> My reading of what Tom is proposing relates to how project costs are tallied, not what are typically considered NEIs. Additional NEIs could include national security and location specific transmission benefits, but we don't currently have vetted numbers for any of those potential NEIs either, and it will probably take longer to decide on those values than vetting energy values that seem to be much further along.
>
> I will also mention that I don't agree with Tom's proposal, since I think it essentially puts project costs into both the benefit and cost elements of the BC equation in a way that neither the Navy nor the project developer experiences. As I see it, either the Navy is 'paying' for the CHP with a land lease where they could otherwise lease the land to someone else for about $740k/yr for 20/35 yrs, or the project developer is paying [redacted] for the CHP and operating it in place of paying the Navy to lease the land. I don't see using a case where the land lease gets counted as a benefit against the CHP installation cost, because that doesn't represent either party's situation.

If the directors want to comment on the Navy 'paying' for the CHP through the [redacted] land lease for 20/35 years, we'll need to decide which term makes sense, and then use the appropriate discount rate to see if that passes BCR, but they will probably eventually hear from Dinesh that he thinks this approach is an accounting trick if it passes under those circumstances, since he has already said as much.

Unfortunately, given my well known lack of persuasive ability, I was not able to convince the smaller group of my detailed knowledge of BCR considerations, so I was out-voted when they insisted that we bring incomplete information to the director level. I offer my apologies.

Mark

From: Ferris, Gerald Jr

Sent: Thursday, November 09, 2017 10:32 PM

To: McAteer, Michael L.

Cc: Sevier, Mark; Coughlin, Thomas J. Jr.; White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.

Subject: Re: Meeting to discuss Navy CHP NEI proposal.

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Sent from my iPad

> On Nov 9, 2017, at 9:43 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
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> Mark

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 11/13/2017 4:58:18 PM
To: White, Carol S. (US-NBRO-RM) [carol.s.white@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; McAteer, Michael L. [michael.mcateer@nationalgrid.com]; Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: Meeting to discuss Navy CHP NEI proposal.
Attachments: Navy CHP RI 2018 Electric Screening Model_v2.xlsx

Attached is my current version of the Navy CHP simplified BCR calculation using 2018 RI values, which primarily multiplies values from the 20 yr measure life line of the avoided cost table by the relevant unit to calculate the BC in the simplest format.

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Notes

Green = Electric Energy	Yellow = Electric Capacity	Blue = Non-Electric (NEB)
Electric and TR Benefit	Electric and TR Benefit	TR Benefit only

Avoided Costs do NOT include line losses. Those are added in during the calculation of the benefit

The tables below are pasted in from the Avoided Cost Tool
The inputs below are pasted in from the Avoided Cost Tool for traceability purposes

RI Input Factors	2018	2019	2020
Nominal Discount Rate	[redacted]		
Inflation			
Real Discount Rate			
Half-Year Factor			
Source			
Reserve Margin Multiplier			
Transmission ($ per kW)			
Distribution ($ per kW)			
Res Water & Sewer			
CI Water			
CI Sewer			
T&D Factors $ Year			
W&S Factors $ Year			
CapacityDRIPE			
EnergyDRIPE			
Environmental Externalities			

RI LINE LOSS FACTORS	Energy				Capacity			
Sectors	Winter Peak	Winter Off-Peak	Summer Peak	Summer Off-Peak	Summer Gener.	Winter Gener.	Transm.	Distrib.
Residential	[redacted]							
Com/Ind								

Fuel Type	Metric	Winter On Peak	Winter Off Peak	Summer On Peak	Summer Off Peak
Electric Generation	[redacted]				
End Use Natural Gas					
#2 Fuel Oil					
Propane					

Year 1 Avoided Cost Data - In Nominal Dollars

RI	2018	Winter Peak Energy	Winter Off-Peak Energy ($ per kWh)	Summer Peak Energy ($ per kWh)	Summer Off-Peak Energy ($ per kWh)	Summer Generation ($ per kW)	Winter Generation ($ per kW)	Transmission ($ per kW)	Distribution ($ per kW)	Fuel Oil - Residential Distillate ($ per MMBtu)	Fuel Oil - Com #2 Oil ($ per MMBtu)	Fuel Oil - Com #4 Oil ($ per MMBtu)	Fuel Oil - Ind #6 Oil ($ per MMBtu)	NG - Res Hot Water ($ per MMBtu)	NG - Res Gas Old Bldg ($ per MMBtu)	NG - Res Gas New Bldg ($ per MMBtu)	NG - C&I Gas DHW ($ per MMBtu)	NG - C&I Gas Heat ($ per MMBtu)	NG - C&I Gas All ($ per MMBtu)	Propane (11) ($ per MMBtu)	Kerosene (12) ($ per MMBtu)	Res Water ($ per gallon)	C&I Water ($ per gallon)	C&I Sewer ($ per gallon)	Non-Resource Annual	DRIPE ($ per kW)	Non-Resource	Winter Peak Energy DRIPE	Winter Off-Peak Energy DRIPE	Summer Peak Energy DRIPE	Summer Off-Peak Energy DRIPE	Winter Peak Energy CO2 Costs	Winter Off-Peak Energy CO2 Costs	Summer Peak Energy CO2 Costs	Summer Off-Peak Energy CO2 Costs
		Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative				Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	ADDED	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative	Annual Cumulative
		#REF!		#REF!	#REF!																						Non-Resource - 1 Tim	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
1	2018	[redacted]																																	
2	2019																																		
3	2020																																		
4	2021																																		
5	2022																																		
6	2023																																		
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23	2040																																		
24	2041																																		
25	2042																																		

$ 14,349,601.01

Cell: G9
Comment: lanecn
Updated discount rates and inflation using 2016 as the base year. Used 10 year treasury note.

Cell: G12
Comment: National Grid
Line Loss factor for Capacity benefits set to zero. This is to prevent double counting of line losses since they are embedded in the avoided costs for capacity that are provided by the 2015 Avoided Cost study.

Line Loss factor for T&D set to zero. This is to prevent double counting since line losses are embedded in the T&D benefits that come from the T&D model

Cell: C30
Comment: perryji
the avoided cost study values escalated to the year in column B

Cell: D30
Comment: perryji Gives you the present value of the values in column A based on the measure life

Navy CHP simplified BCR

	Econ Benefit	Electric kW
[redacted]		

BCR using Gas DHW value

[redacted]

/h benefits CO2 benefits

[redacted]

[redacted]

[redacted] winter 2016-17 oil/gas usage values that align with BQ study thermal estimate

winter 2016-17 oil/gas usage values

Oil Benefits	Negative benefits
[redacted]	

BCR using Gas Other value

gas 'other' value is halfway between heat and DHW

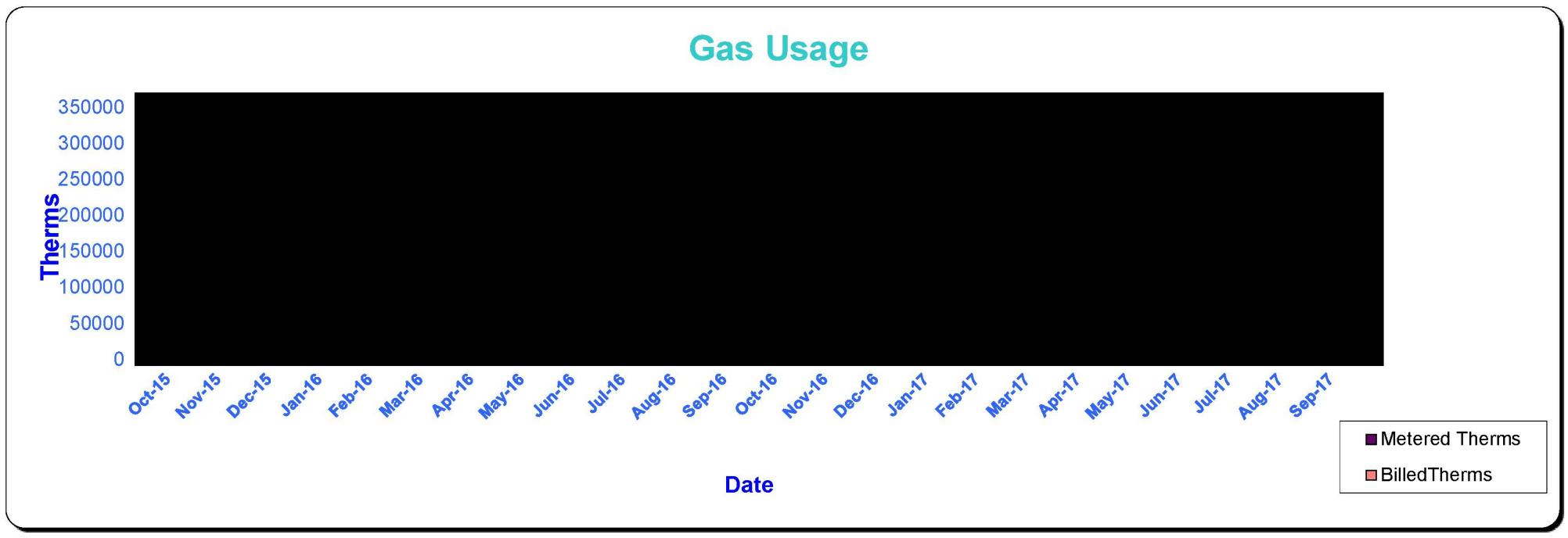
[redacted]

nationalgrid

U S NAVY N62470-94-C-9446

6459108006

Mail:	**Service:**	**RateCode:**	439
UTIL PROC CTR ML_NP_GS00001	SIMON PIETRI DR BLDG 7	**RateDesc:**	
NORFOLK, VA	NEWPORT, RI		



Bill Date	Num Bills	Days	Metered Therms	Billed Therms

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 11/13/2017 7:32:32 PM
To: Coughlin, Thomas J. Jr. [thomas.coughlin@nationalgrid.com]
CC: McAteer, Michael L. [michael.mcateer@nationalgrid.com]; White, Carol S. (US-NBRO-RM) [carol.s.white@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Newberger, Jeremy J. [jeremy.newberger@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: Meeting to discuss Navy CHP

What I sent is a simplified manual custom RI BC screening, but will not represent a significant change to what the TSCs will be doing once the custom BC tool has been created for 2018.

What is different in RI for 2018 is that the economic benefit of 80c/$1 of project dollar means that every project starts with a BCR of 0.8 based only on the spending before any energy is saved, and the $100/ton for carbon means the energy benefit values increase by around 50%, so many more projects are likely to pass BCR.

I had not done an in-depth BC test review during 3 yr & 2018 planning, but I now see that the 2018 RI BC test significantly increases the savings potential in RI, so in the end, the consultants went easy on NGrid, whether or not they realize it (which they probably don't). For example, if pursued, the [redacted] Navy CHP could close the apparent 2019 gap (and then some) on its own, where it wouldn't have passed the 2017 RI BCR test.

Mark

-----Original Message-----
From: Coughlin, Thomas J. Jr.
Sent: Monday, November 13, 2017 12:48 PM
To: Sevier, Mark; Ferris, Gerald Jr
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
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| Cell 978.501.3689 | Fax 781.296.8090 |
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Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 11/14/2017 2:40:02 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
CC: Moreira, David [david.moreira@nationalgrid.com]
Subject: Re: Meeting to discuss Navy CHP NEI proposal.

I am not sure if he wrote it
Dinish and sevier are his concerns

On Nov 14, 2017, at 9:37 AM, Paine, Fred <Fred.Paine@nationalgrid.com> wrote:

> Did Jed write the report referenced ? Do you know his concerns?
>
> -----Original Message-----
> From: Dunham, Jeffrey B.
> Sent: Tuesday, November 14, 2017 9:36 AM
> To: Moreira, David
> Cc: Paine, Fred
> Subject: FW: Meeting to discuss Navy CHP NEI proposal.
>
> Just an update see below
>
> Jeffrey Dunham
> Certified Energy Manager
> LEED Accredited Professional (AP)
> National Grid
> 280 Melrose St.
> Providence, RI 02907
> 401-784-7638 Office
> 401-527-4055 Cell
> 315-460-8954 Fax
>
> -----Original Message-----
> From: Henschel, Rachel
> Sent: Monday, November 13, 2017 10:40 PM
> To: Coughlin, Thomas J. Jr.; Sevier, Mark; Ferris, Gerald Jr
> Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
> Subject: RE: Meeting to discuss Navy CHP NEI proposal.
>
> Tom,
>
> Yes, ok with proceeding with the BC information Mark has provided. From past conversations, we have seen a few ways in which this project screens using 2018 RI Test based on the preliminary info from the vendor and customer. Last month, Jed planned to write up these various ways and their associated caveats in order to document both the complexities and the numerous ways this project was above 1.0. I still believe this action will be helpful because it will save time in the future from rehashing complex arguments. It is also a good indication that this project will screen once more information is back from the customer and studies.

Regarding 'introducing the non-resource avoided cost component,' I believe you mean socializing the 2018 screening tool. Mark & Adelaida are coordinating with Whitney to make RI updates along with MA and communicating updates at the beginning of the year, as has been done in past years. Specifically, RI will be updated to include the economic and carbon benefits and both states will have the updated avoided costs for 2018. Several of the screening inputs described on this email chain are specific to CHP, e.g. local distribution value for CHP above 1 MW. There will be an unlocked version for CHP screening.

The tool will be ready for another run of the B/C when more final information is available.

For next steps, let's take this offline of this email chain and discuss on our next weekly call that Jeff organized.

--Rachel

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> On Nov 9, 2017, at 9:43 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
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> Mark

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 11/15/2017 2:27:44 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || Newport Navy CHP

Looks good

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Wednesday, November 15, 2017 9:23 AM
To: Moreira, David; Ferris, Gerald Jr
Cc: Kennedy, John C.; Patel, Dinesh; Coughlin, Thomas J. Jr.; Henschel, Rachel
Subject: RE: EXT || Newport Navy CHP

David here is a summary

Naval Station Newport is developing a project in which they will lease land to a company to install a 20MW solar farm (not for Navy consumption). In lieu of payment for the land lease the company will install a 7.5MW CHP (combined heat and power engine). New ground is being broken with how the cost effectiveness of the project is being reviewed by NGrid. The renewable benefit of the solar farm will be factored in to the cost effectiveness of the project. The cost of the CHP is approximately [redacted] Construction is anticipated in 2018 if everything goes accordingly with a 2019 competion.

Currently the project is stalled due to a Non-disclosure agreement (NDA) with NGrid legal dept. As of yesterday Tom C and Rachel have agreed to move forward with the 2018 BCR (benefit cost analysis) results and not wait for an outcome of the non-electric benefit factor weighing in on the BCR. Once the NDA is signed by NGrid and Jed received the CHP vendors calculations/model and feels comfortable with the results the customer will move forward with the interconnection agreement.

Jed
Did I miss anything ?

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
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280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Moreira, David
Sent: Wednesday, November 15, 2017 9:03 AM
To: Dunham, Jeffrey B.; Ferris, Gerald Jr; Patel, Dinesh
Cc: Kennedy, John C.; Paine, Fred
Subject: RE: EXT || Newport Navy CHP

Fred is out today with a procedure…

Please draft a realistic update for John as soon as possible…

From: Isberg, John F.
Sent: Wednesday, November 15, 2017 8:51 AM
To: Moreira, David; Paine, Fred; Kennedy, John C.
Subject: Fwd: EXT || Newport Navy CHP

Can I get an update for a call today.

Sent from my iPad

Begin forwarded message:

> **From:** "Kearns, Christopher (DOA)" <Christopher.Kearns@energy.ri.gov>
> **Date:** November 15, 2017 at 8:47:32 AM EST
> **To:** "Isberg, John F." <John.Isberg@nationalgrid.com>
> **Subject: EXT || Newport Navy CHP**
>
> Hi John,
>
> Hope that all is well! I was connecting with the Newport Navy staff and Senator Whitehouse's team regarding the Newport Navy's pursuit of a CHP system at the base over the past week and wanted to check in with you too.
>
> Would you have a few minutes to speak today? Just wanted to catch up regarding this project, see where it stands from the company's perspective regarding interconnection studies, energy efficiency/CHP incentives that have been provided, etc.
>
> Would anytime work for you between 11:00-12 or 12:30-2:30 today? If not today, would any times work for you on Thursday?
>
> Thanks,
>
> Chris

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 11/15/2017 2:39:30 PM
To: Moreira, David [david.moreira@nationalgrid.com]; Isberg, John F. [john.isberg@nationalgrid.com]; White, Carol S. (US-NBRO-RM) [carol.s.white@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: EXT || Newport Navy CHP

Perhaps you folks can get the NDA moving along with Grid legal

Jeffrey Dunham
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401-527-4055 Cell
315-460-8954 Fax

From: Moreira, David
Sent: Wednesday, November 15, 2017 9:26 AM
To: Isberg, John F.
Cc: White, Carol S. (US-NBRO-RM); Dunham, Jeffrey B.; Ferris, Gerald Jr
Subject: RE: EXT || Newport Navy CHP

These are the (2) most relevant updates –

From: Dunham, Jeffrey B.
Sent: Wednesday, November 15, 2017 9:23 AM

JED FERRIS -
The overall "project" was hinging on whether NGrid incentivized the CHP project. After several debates and iterations of the BCR run, we have decided to give preliminary approvals for the CHP project to the NAVY. We are actively pursuing reviewing their 8760 hour model that was developed for the NAVY. Currently we are trying to get a NDA signed between NGrid and the engineering developer parties so we can confirm the savings and the passing BCR inputs through our TA study process. I believe once we have an approval from the EE perspective, the developer entity will pay for the impact study fees of both the Solar and create one for the CHP as well. (21 MW solar and 7 MW CHP). They did not want to incur more costs if we were not going to participate on the CHP side.

I hope this helps.

Gerald (*Jed*) Ferris
NE CHP Project Manager

JEFF DUNHAM -
David here is a summary
Naval Station Newport is developing a project in which they will lease land to a company to install a 20MW solar farm (not for Navy consumption). In lieu of payment for the land lease the company will install a 7.5MW CHP (combined heat and power engine). New ground is being broken with how the cost effectiveness of the project is being reviewed by NGrid. The renewable benefit of the solar farm will be factored in to the cost effectiveness of the project. The cost of

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Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)

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Subject: RE: EXT || Newport Navy CHP

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Thanks,

Chris

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 11/15/2017 2:05:47 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
CC: Lonergan, Beth [beth.lonergan@nationalgrid.com]
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

I think I have put my opinion in email form earlier and the group voted to bring this subject before the directors to discuss based on that opinion; 3 votes to 4(Mark S being the odd vote). This last 2 weeks on this subject has been a cluster of wills. Mark Sevier seems to have an agenda and has sabotaged the process and put a mystery of confusion before the directors. I feel like to further push would cause one of us to appear unprofessional and lose credibility. I do not have the time to argue this point during the end of the year crunch. We will go down Mark Sevier's path and if it fails oh well, start over with the Directors delaying the project further. If it is fine, no harm no foul. It should not be a fight to try to entertain new ideas. I think we should claim the NEI either way for the program. If it helps pass the BCR great, well worth the effort. If it is not needed additional benefits have been realized and reported. Waiting to have the discussion will just delay the customer. Regardless of this discussion we were already trying to move forward to TA study anyways. We are currently waiting for the NDA to be created and signed not this director approval.

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NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Paine, Fred
Sent: Tuesday, November 14, 2017 7:56 AM
To: Ferris, Gerald Jr
Subject: FW: Meeting to discuss Navy CHP NEI proposal.

If your uncomfortable. I would suggest you put the reasonings in an email - include Racheal.

-----Original Message-----
From: Dunham, Jeffrey B.
Sent: Monday, November 13, 2017 6:10 PM
To: Coughlin, Thomas J. Jr.
Cc: Paine, Fred; Ferris, Gerald Jr; Dipetrillo, Mark
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Tom
I would suggest a quick call with Jed, Fred, Mark Dipetrillo and myself before cancelling the meeting with the directors. I'm not sure there is a great comfort level in leaving things as Mark Sevier is proposing
Jeff

Jeffrey Dunham
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LEED Accredited Professional (AP)
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-----Original Message-----
From: McAteer, Michael L.
Sent: Monday, November 13, 2017 5:21 PM
To: Coughlin, Thomas J. Jr.; Sevier, Mark; Ferris, Gerald Jr
Cc: White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Seems that this would simplify the decision if it's really standard practice with the screening tool, provided the absent data comes back with that impact - M

-----Original Message-----

From: Coughlin, Thomas J. Jr.
Sent: Monday, November 13, 2017 12:48 PM
To: Sevier, Mark; Ferris, Gerald Jr
Cc: McAteer, Michael L.; White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Mark,

Thank you. Whereas we are no longer considering the rental income NEI, I think we can drop the directors from this effort for now (that's why we need their input in the first place).

If Rachel and yourself are o.k. with proceeding with the BC analysis you provided and just for this project, Its time to socialize what we've done with the tech reps. I will ask Jed to set up that meeting.

This might be a good way to introduce the "non-resource" avoided cost component you added here that isn't in our current project level screening.

Tom Coughlin
Manager, Technical Policy | National Grid
| Office 781.907.1582 |
| Cell 978.501.3689 | Fax 781.296.8090 |
thomas.coughlin@nationalgrid.com
www.nationalgrid.com
Please consider the environment before printing this e-mail

-----Original Message-----
From: Sevier, Mark
Sent: Monday, November 13, 2017 11:58 AM
To: White, Carol S. (US-NBRO-RM)
Cc: Ferris, Gerald Jr; McAteer, Michael L.; Coughlin, Thomas J. Jr.; Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
Subject: RE: Meeting to discuss Navy CHP NEI proposal.

Attached is my current version of the Navy CHP simplified BCR calculation using 2018 RI values, which primarily multiplies values from the 20 yr measure life line of the avoided cost table by the relevant unit to calculate the BC in the simplest format.

I also attempted to estimate the proposed CHP efficiency, based on the vendor's energy values. Earlier there was a discrepancy between NGrid's billed usage and the vendor's thermal load, which I discovered was #4 oil use, and therefore increased the BCR from what I had previously calculated (1.08 using gas DHW value).

Mark

-----Original Message-----
From: White, Carol S. (US-NBRO-RM)
Sent: Friday, November 10, 2017 2:00 PM
To: Sevier, Mark
Cc: Ferris, Gerald Jr; McAteer, Michael L.; Coughlin, Thomas J. Jr.; Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
Subject: Re: Meeting to discuss Navy CHP NEI proposal.

You some compelling arguments, Mark. Could you please provide us with a b/c run for this project that takes into account your perspective, understanding that we will be understating the societal benefits at this point?

Sent from my iPad

> On Nov 10, 2017, at 8:32 AM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>
> My reading of what Tom is proposing relates to how project costs are tallied, not what are typically considered NEIs. Additional NEIs could include national security and location specific transmission benefits, but we don't currently have vetted numbers for any of those potential NEIs either, and it will probably take longer to decide on those values than vetting energy values that seem to be much further along.
>
> I will also mention that I don't agree with Tom's proposal, since I think it essentially puts project costs into both the benefit and cost elements of the BC equation in a way that neither the Navy nor the project developer experiences. As I see it, either the Navy is 'paying' for the CHP with a land lease where they could otherwise lease the land to someone else for about [redacted] for 20/35 yrs, or the project developer is paying [redacted] for the CHP and operating it in place of paying the Navy to lease the land. I don't see using a case where the land lease gets counted as a benefit against the CHP installation cost, because that doesn't represent either party's situation.

>
> If the directors want to comment on the Navy 'paying' for the CHP through the [redacted] land lease for 20/35 years, we'll need to decide which term makes sense, and then use the appropriate discount rate to see if that passes BCR, but they will probably eventually hear from Dinesh that he thinks this approach is an accounting trick if it passes under those circumstances, since he has already said as much.
>
> Unfortunately, given my well known lack of persuasive ability, I was not able to convince the smaller group of my detailed knowledge of BCR considerations, so I was out-voted when they insisted that we bring incomplete information to the director level. I offer my apologies.
>
> Mark
> _____
> From: Ferris, Gerald Jr
> Sent: Thursday, November 09, 2017 10:32 PM
> To: McAteer, Michael L.
> Cc: Sevier, Mark; Coughlin, Thomas J. Jr.; White, Carol S. (US-NBRO-RM); Henschel, Rachel; Paine, Fred; Newberger, Jeremy J.; Dipetrillo, Mark; Moshier, Andrea; Dunham, Jeffrey B.
> Subject: Re: Meeting to discuss Navy CHP NEI proposal.
>
> The group did not feel it was wise to wait for a full TA study to be done. We are afraid that something would come out of the study and the original estimates might be diminished. If we were wrong, then we would have to have this debate again in the future and further delay the project.
>
> If we can decide we can count this NEI shouldn't we count it and claim additional benefits even if it is not needed to pass the BCR?
>
> Thanks Jed
>
>> On Nov 9, 2017, at 10:11 PM, McAteer, Michael L. <Michael.McAteer@nationalgrid.com> wrote:
>>
>> Does everyone feel comfortable that the CHP passes our regular BCR screening.? I may have been mistaken but I thought that was the issue and we were looking for additional benefits to ensure it would pass and the multiple conversations were addressing that impasse. Can the team look for clarity.
>>
>> Tom can you please give some thought and recommendations to Carol and I with Mark's additional insights . I still believe that it is sufficiently complex that we should also align with our stakeholders . Carol , your thoughts? - Michael
>>
>> Sent from my iPad
>>
>>> On Nov 9, 2017, at 9:43 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>>>
>>> Mark

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 11/16/2017 7:36:29 PM
To: Lane, Courtney [courtney.lane@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]
CC: Nagy, Stefan [stefan.nagy@nationalgrid.com]
Subject: RE: EXT || TEC-RI RE: 2018 EE Plan
Attachments: 2017 Dual Fuel Custom Screening Tool - RI CHP_Navy.xlsm

Hi –

Attached, the 2017 custom screening tool for CHP with project specific inputs as they came to me, showing a BC of 0.58, which in theory includes the former CHP economic benefit, though I didn't make the CHP tool, and have not checked whether or not it works correctly in this regard.

It looks like Jed is estimating a [redacted] incentive

The total project cost is estimated to be [redacted] which will be $[redacted] incentive & balance considered customer cost (which in this case is not simple, since the CHP installation is part of a combined project with a 21MW solar array, where the solar developer is 'paying' the Navy for the use of their land with the CHP system, including O&M. Dinesh was involved in this question, and feels the $[redacted] value should be used as the project cost, not the land lease value)

Total gross kWh savings is estimated to be [redacted] positive oil, negative gas & O&M values are as shown in my simplified screening tool. At the time this came to me, I was not aware that there was some oil savings that reduced the apparent gas savings (before the CHP gas usage increase); it turns out there will be #4 oil savings and negative gas savings in the scale of what I showed in the simplified BC version I sent initially. AFAIK, the custom screening tool 'Oil" column uses the #2 oil benefit value, which has a higher value than #4 oil, so the 2017 RI CHP tool would probably need the oil savings to be entered into the annual $ value column once combined with the O&M value.

Thanks for taking a look at this,
Mark

From: Lane, Courtney
Sent: Thursday, November 16, 2017 2:15 PM
To: Sevier, Mark; Henschel, Rachel
Cc: Nagy, Stefan
Subject: RE: EXT || TEC-RI RE: 2018 EE Plan

Hi Mark,

Taking a look at this. Do you have a version of what the CHP screening tool looked like before - under the old test?

Also is this for a specific project?
If so could you give me the breakdown of the following so I can double check:

- Incentive $
- Customer cost
  - Also does incentive plus the customer cost cover the full cost of project?
- total gross KWh savings of project

Thanks,
Courtney

-----Original Message-----
From: Sevier, Mark
Sent: Wednesday, November 15, 2017 5:47 PM
To: Henschel, Rachel
Cc: Lane, Courtney; Nagy, Stefan
Subject: FW: EXT || TEC-RI RE: 2018 EE Plan

Hi -

In the attached, TEC-RI is observing an increase in program BC's in the scale of 1 point; granted there are a number of changes between years, but between the economic benefit adding 0.8 and the carbon benefit adding roughly 50% to the value of saved energy, the 1 point increase in BCR seems like it is in the right range.

In the attached simplified BCR I created for the Navy CHP, the economic benefit directly adds 0.8 to the BCR, because the 0.8 * project cost gets added to the benefits, which are then divided by the cost, so I expect if you went into the 2018 planning tool and zero-ed out all the economic benefits, you'd find all the gross BCRs will drop by 0.8. Note that line loss factors are included in electric benefits, and that Courtney confirmed the oil & gas avoided cost values include carbon benefits.

Courtney / Stefan -

Can you find a problem with my logic on the effect of adding the economic & carbon benefits to the BCR test? I am not an expert in the BC tool, so I created the simplified attached version after having a couple mishaps trying to force the Navy CHP project into the 2018 planning tool.

Thanks,
Mark

-----Original Message-----
From: Tecri [mailto:doug@tecri.org]
Sent: Thursday, October 19, 2017 2:09 PM
To: 'Erika Niedowski'; Foley, Lindsay; 'Kat Burnham'; Nicholas.Ucci@energy.ri.gov; 'Becca Trietch (DOA)'; Ray, Matthew; jmm@rwmengineering.com; elevin@veic.org; 'sosada'; 'Schrag, Jonathan (DPUC)'; Rodormer, Laura; Carrie.Gill@energy.ri.gov; 'Mike Guerard'; Chandra, Mona; 'Jon Hagopian'; kravatz@optenergy.com; Yang, Muxi; 'Michael Baer'; 'Jeff Loiter'; al.contente@dpuc.ri.gov; Hourihan, Alice; jmunoz@riag.ri.gov; 'Tim Woolf'; 'Grant, Carol (DOA)'; 'Jamie Howland'; danny.musher@energy.ri.gov; Paine, Fred; Richards, John; 'Craig Johnson'; mbaer@riinfrastructurebank.com; 'Kate Desrochers'; larry@massenergy.org; Nagy, Stefan; Springsteel, Ian; dmacrae@riag.ri.gov; chetherington@riag.ri.gov; Scanlon, Joanne M.; 'Scialabba, Steve (DPUC)'; Emerick, Romilee; Li, Angela; McAteer, Michael L.; 'Brigid Ryan'; 'Jenn Kallay'; Webster, Raquel; Henschel, Rachel; Lane, Courtney; Christopher.Kearns@energy.ri.gov; Chase, Matthew; imason@rpmpowerllc.com; Nogales, Adelaida; Roughan, Timothy R.; George, Caleb; Constable, Ryan
Cc: becca.trietch@energy.ri.gov
Subject: EXT || TEC-RI RE: 2018 EE Plan

Energy Efficiency Collaborative & EERMC:

Please find attached memo from TEC-RI RE: 2018 Annual EE Plan. The TEC-RI Board has voted to not sign on as a settling party, based on the content of the attached memo. We appreciate having the opportunity to participate in the discussion and present our view point. We do not plan on intervening (at this time), but will present our objections to the PUC at their docket hearing.

Doug Gablinske
TEC-RI Executive Director

(401) 741-5101

Confidential Document Withheld from Production

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 11/16/2017 2:10:59 PM
To: Lane, Courtney [courtney.lane@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]
CC: Nagy, Stefan [stefan.nagy@nationalgrid.com]
Subject: RE: EXT || TEC-RI RE: 2018 EE Plan

Great, thanks. So it seems a potential study should look at measures with former BCs down in the 0.1 - 0.3 range to estimate future savings possibilities, given that carbon benefits get added to the economic benefits, and potential implementation cost reductions as they become more prevalent.

Mark

From: Lane, Courtney
Sent: Thursday, November 16, 2017 9:04 AM
To: Sevier, Mark; Henschel, Rachel
Cc: Nagy, Stefan
Subject: RE: EXT || TEC-RI RE: 2018 EE Plan

Hi Mark,

The 0.80 is only for CHP. It was a separate analysis to get that value.

Other EE measures have their own multipliers - one for Resi and one for non-CHP C&I.

If you look at attachment 4 of the 2018 Plan (RI Test) Bates page 254 and 255 you'll see the write up for non CHP EE measures. We take the average of program and participant spend to get the 0.72 and 0.57 values.

Courtney

-----Original Message-----
From: Sevier, Mark
Sent: Thursday, November 16, 2017 8:35 AM
To: Henschel, Rachel
Cc: Lane, Courtney; Nagy, Stefan
Subject: RE: EXT || TEC-RI RE: 2018 EE Plan

As it stands today, implementation's C&I custom screening process does not include impact factors, so AFAIK the gross BC calculation is straightforward. What NGrid claims may be different than what passes BCR. Can you point to the values that modify the 0.8 to become 0.52 and 0.73?

Mark

From: Henschel, Rachel
Sent: Wednesday, November 15, 2017 10:00 PM
To: Sevier, Mark
Cc: Lane, Courtney; Nagy, Stefan
Subject: Re: EXT || TEC-RI RE: 2018 EE Plan

Mark,

Econ multiplier for CHP is 0.8 of the TRC, but C&I is approx 0.52 and residential is 0.73. That is not "we claim 80% of all costs as benefits."

Courtney/Stefan,

If one of you have time, please take a look at the simplified screening for Navy CHP that Mark attached. Since this is potentially a [redacted] incentive, it would be good to have a review of the screening since the custom screening tool isn't ready yet.

Rachel

> On Nov 15, 2017, at 5:46 PM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>
> Hi -
>
> In the attached, TEC-RI is observing an increase in program BC's in the scale of 1 point; granted there are a number of changes between years, but between the economic benefit adding 0.8 and the carbon benefit adding roughly 50% to the value of saved energy, the 1 point increase in BCR seems like it is in the right range.

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> Mark
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> Sent: Thursday, October 19, 2017 2:09 PM
> To: 'Erika Niedowski'; Foley, Lindsay; 'Kat Burnham'; Nicholas.Ucci@energy.ri.gov; 'Becca Trietch (DOA)'; Ray, Matthew; jmm@rwmengineering.com; elevin@veic.org; 'sosada'; 'Schrag, Jonathan (DPUC)'; Rodormer, Laura; Carrie.Gill@energy.ri.gov; 'Mike Guerard'; Chandra, Mona; 'Jon Hagopian'; kravatz@optenergy.com; Yang, Muxi; 'Michael Baer'; 'Jeff Loiter'; al.contente@dpuc.ri.gov; Hourihan, Alice; jmunoz@riag.ri.gov; 'Tim Woolf'; 'Grant, Carol (DOA)'; 'Jamie Howland'; danny.musher@energy.ri.gov; Paine, Fred; Richards, John; 'Craig Johnson'; mbaer@riinfrastructurebank.com; 'Kate Desrochers'; larry@massenergy.org; Nagy, Stefan; Springsteel, Ian; dmacrae@riag.ri.gov; chetherington@riag.ri.gov; Scanlon, Joanne M.; 'Scialabba, Steve (DPUC)'; Emerick, Romilee; Li, Angela; McAteer, Michael L.; 'Brigid Ryan'; 'Jenn Kallay'; Webster, Raquel; Henschel, Rachel; Lane, Courtney; Christopher.Kearns@energy.ri.gov; Chase, Matthew; imason@rpmpowerllc.com; Nogales, Adelaida; Roughan, Timothy R.; George, Caleb; Constable, Ryan
> Cc: becca.trietch@energy.ri.gov
> Subject: EXT || TEC-RI RE: 2018 EE Plan
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> Energy Efficiency Collaborative & EERMC:
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> Doug Gablinske
> TEC-RI Executive Director
> (401) 741-5101
>
>
>
>
> <2017 TEC RI Oposition To 10_18_17 Final Draft.docx>
> <large CHP RI 2018 Electric Screening Model_v3.xlsx>

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 12/18/2017 3:36:40 PM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [john.reichert@navy.mil]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [daniel.l.sullivan3@navy.mil]; Sprague, James CIV NAVFAC MIDLANT, PWD Newport [james.sprague1@navy.mil]; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport [james.f.carlson1@navy.mil]; Jim Falsetti [jim.falsetti@bqenergy.com]
Subject: actual cost for electric and gas for CHP analysis

John
I really would rather this not be an item that holds up the review, please provide this requested information as soon as you can
thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dunham, Jeffrey B.
Sent: Tuesday, December 05, 2017 11:13 AM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Ferris, Gerald Jr; 'Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport'
Subject: actual cost for electric and gas
Importance: High

Hi John
As discussed on the phone this morning can you verify/provide what the Navy pays for electric and gas . Total cost including supply, distribution, etc
For example is it 13 cents per kwh and $1.10 a therm?
If you can turn this around quickly it will be appreciated
thanks

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From: Ferris, Gerald Jr
Sent: Monday, December 04, 2017 4:39 PM
To: Dunham, Jeffrey B.; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Subject: RE: actual cost for electric and gas

Hi folks,

Was this question answered? I might have missed it. Sending this into tech review and wanted to ensure I had everything.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Tuesday, November 07, 2017 11:31 AM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Ferris, Gerald Jr
Subject: actual cost for electric and gas
Importance: High

John
What is your annual average cost per kwh and per therm for electric and gas
Is it 13 cents for electric and $1.10 for gas

I only have access to your distribution piece which is approximately [redacted] and the gas ranges from [redacted]

thanks

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Sent: 12/19/2017 3:31:18 PM
To: Greg Hester [greg.hester@ebdengineering.com]; naveen kapur [naveenk@nkengineers.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Jim Falsetti [jim.falsetti@bqenergy.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
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N.K. Engineers, Inc

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Subject: RE: EXT || Newport Naval Base Model

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From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, November 27, 2017 10:08 AM

To: Ferris, Gerald Jr; naveen kapur
Subject: EXT || Newport Naval Base Model

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Include Contribution from Existing Backpressure Steam Turbine? Y/N

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Sent: 12/19/2017 9:10:51 PM
To: Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: Re: EXT || Newport Naval Base Model

Yeah I just called them

Thanks Jed

On Dec 19, 2017, at 3:55 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

> Should I tell Dennis to pause his analysis?
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services
> nationalgrid
> 280 Melrose Street
> Providence, RI 02907
> (o) 401.784.7414
> (m) 401.603.8866
>
> ---
>
> **From:** Ferris, Gerald Jr
> **Sent:** Tuesday, December 19, 2017 10:31 AM
> **To:** Greg Hester; naveen kapur
> **Cc:** Dunham, Jeffrey B.; Jim Falsetti; Moshier, Andrea
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www.ebdengineering.com

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 12/20/2017 7:09:29 PM
To: Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || Newport Naval Base Model

Or I can do the Tech Review. I have the bandwidth to at least get it to Dinesh' level by January 3rd and can work on documenting what has occurred for Evaluation purposes? Just a thought.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
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Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Ferris, Gerald Jr
Sent: Wednesday, December 20, 2017 1:46 PM
To: Dipetrillo, Mark; Moshier, Andrea
Cc: Paine, Fred; Dunham, Jeffrey B.
Subject: RE: EXT || Newport Naval Base Model

We can ask the contractor for a TA study report.

Naveen and this guy Greg Hestor have paired up for the Energy Efficiency study part. It is a good study; I do not see any issues with the content or format. It seems to be in order. We were trying to save the Navy a co-pay and what I thought would be time but after it is all said and done we should have just hired our own TA firm. We have spent 6-8 weeks arguing with Mark S and Dinesh about whether it will past BCR, 4 weeks to get an NDA signed; then this issue with contractor. We are just shooting ourselves in the foot. Can we share the RIC L&S study with this contractor. He would feel like there is no leg up. I know it sounds shady but would put him at ease I think.

We can ask for a report (I believe they will write one) but I think at some point the Navy will become frustrated if we delay it for this report to be written. Even if we had the report in hand, we still do not have time to review. The report is not the issue it is the reviewing and confirming savings that we need help with. We can always hire folks after the fact and document a report if needed. Jeff and Fred want to put out an offer letter. Everyone wants the final kwh savings and BCR run into an application.

The only suggestion I have is have Dinesh carry the review with the customers contractor. We can have L&S document the report after we are done? Dinesh is going to dig into this either way whether we hire an outside firm or not. We can have him work with the contractor and have the contractor continually make changes as Dinesh wants. Once its complete, Dinesh and L&S can write up a summary report afterwards. Might be the only option at this point to moving this along. I can ask the contractor for his version of a summary report in the meantime while we are waiting for a Jan 3rd meeting between him and Dinesh??

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NE CHP Project Manager
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Providence RI 02907

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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dipetrillo, Mark
Sent: Wednesday, December 20, 2017 12:33 PM
To: Moshier, Andrea
Cc: Paine, Fred; Ferris, Gerald Jr; Dunham, Jeffrey B.
Subject: Re: EXT || Newport Naval Base Model

A couple of questions before I WSU in:
1) what has the navy said? It's their contractor
2) Naveen is a amazing electrical engineer, does he now have an energy engineer on staff? He did a great job on the interconnection at the PPM, but his savings calcs were sub pare.

Sent from my iPhone

On Dec 20, 2017, at 12:17 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

> Hello,
>
> We can (and are) looking at options for internal resources in January.
> At this point, there are two or three working days left for most of us in 2017.
>
> In addition to vetting the savings model, there is also documentation. The vendor did not provide any write up, or explanation of assumptions or anything like that. On a big project, its important for our reviewers, the customer and the eventual evaluator to document everything well.
>
> I see two options:
>
> 1. Ask this vendor to write a report. Jed, under separate cover I can send you our requirements for a TA study. They are the implementer, so we will not pay.
> 2. Have our TA vendor to a TA study. We can send them the data, and they have already planned resources to help us with this. If we feel the customer has already provided 'in kind' type services we could waive the co-pay.
>
> I guess a third option would be to ignore their complaints, but not sure that's a good one.
>
> Andrea
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services
> nationalgrid
> 280 Melrose Street
> Providence, RI 02907
> (o) 401.784.7414
> (m) 401.603.8866

From: Paine, Fred
Sent: Wednesday, December 20, 2017 11:27 AM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Moshier, Andrea
Subject: Re: EXT || Newport Naval Base Model

I hate when vendors perceive us of handing work over to a competitor. Like the Navy vendor I would me upset.
I would try to accommodate the navy vendor

Sent from my iPhone

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> So the Navy Contractor got wind that we hired an outside vendor to review the calculations and feels we violated our NDA. The company we hired according to him is a direct competitor. I tried to explain that we were swamped and would not be able to meet any time table that would work.
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> Gerald (*Jed*) Ferris
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> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
> ---
>
> **From:** Moshier, Andrea
> **Sent:** Tuesday, December 19, 2017 4:17 PM
> **To:** Ferris, Gerald Jr
> **Subject:** RE: EXT || Newport Naval Base Model
>
> Oh boy.
>
> Would they go for another of our TA vendors? Is there somebody they don't consider a competitor.
>
> **Andrea Moshier, CEM**
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> ---
>
> **From:** Ferris, Gerald Jr
> **Sent:** Tuesday, December 19, 2017 4:11 PM
> **To:** Moshier, Andrea
> **Subject:** Re: EXT || Newport Naval Base Model

Yeah I just called them

Thanks Jed

On Dec 19, 2017, at 3:55 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

> Should I tell Dennis to pause his analysis?
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services
> nationalgrid
> 280 Melrose Street
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> (o) 401.784.7414
> (m) 401.603.8866
>
> ---
>
> **From:** Ferris, Gerald Jr
> **Sent:** Tuesday, December 19, 2017 10:31 AM
> **To:** Greg Hester; naveen kapur
> **Cc:** Dunham, Jeffrey B.; Jim Falsetti; Moshier, Andrea
> **Subject:** RE: EXT || Newport Naval Base Model
>
> Our Technical Assistance (TA) firms are contracted with a Nondisclosure agreement in place as an employee/representative of National Grid when we sign a contract with them. They are not allowed to use any portion of the study in any other capacity than what we contract them for which was to review savings and OEE numbers for adherence to our program metrics. They are not allowed to bid on any portion of this CHP project or in conjunction where conflict of interest would occur on any other CHP project. We have been very proactively policing our TA firms for that metric.
>
> We looked at this internally and had them sign an additional NDA just for this project to put them on notice the criticality of sharing this information. Unfortunately to keep the time table our internal people do not have the bandwidth to move this along properly for you and we felt that time was critical.
>
> If you feel you still object; to them gaining access I think we will have to re-assess the time frame that we gave you and discuss other methods and means to move this along.
>
> Please feel free to call me direct and we can discuss what the next step should be.
>
> Thanks
>
> Jed
>
> Gerald (*Jed*) Ferris
> NE CHP Project Manager
> National Grid

280 Melrose Street
Providence RI 02907
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Tuesday, December 19, 2017 10:22 AM
To: Ferris, Gerald Jr; naveen kapur
Cc: Dunham, Jeffrey B.; Jim Falsetti
Subject: Re: EXT || Newport Naval Base Model

Good morning Jed,

I received a notice from DropBox that Dennis Landsberg from L&S Energy Services wants to join the Navy folder to download the model and information. This is the concern I had originally with sharing the model. L&S is a competing firm to EBD Engineering and sharing our intellectual capital with a competing firm put us at risk. Please advise.

Regards,

Gregory S. Hester, PE LEED AP

<image001.jpg>
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, December 5, 2017 at 8:01 AM
To: naveen kapur <naveenk@nkengineers.com>, Greg Hester <greg.hester@ebdengineering.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || Newport Naval Base Model

Yes we are just trying to from a high level how everything is tied together. Such and Such Gas turbine feeds a blah blah blah sized heat recovery steam generator as well as capturing hot water here and there, out the stack. Cooling towers? Attached here? Perhaps estimate MBH on each loop if you can? If you cannot that is fine but at least we know how things are attached.

I am more concerned that folks will get confused about your chilled water references and want to ensure that this diagram is part of the study to confirm what is captured and used in the OEE numbers.

Gerald (*Jed*) Ferris
NE CHP Project Manager
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Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Tuesday, December 05, 2017 7:54 AM
To: Ferris, Gerald Jr; Greg Hester
Cc: Dunham, Jeffrey B.; Jim Falsetti
Subject: Re: EXT || Newport Naval Base Model

Jed
Are you looking to indicate possible interconnection points for the electric, steam feed water etc. or something else?

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, December 5, 2017 at 7:35 AM
To: Greg Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || Newport Naval Base Model

What about a hand sketch; or a square box diagram? Nothing binding but at least it conveys how things are hooked up with the current system and perhaps existing available data points?

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NE CHP Project Manager
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From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Tuesday, December 05, 2017 5:21 AM
To: Ferris, Gerald Jr; naveen kapur
Cc: Dunham, Jeffrey B.; Jim Falsetti
Subject: Re: EXT || Newport Naval Base Model

Good morning Jed,

We did not generate a P&ID yet. We typically generate one as part of the next phase of the design process once a project pencil's out on paper.

I will forward you the data we received from Solar and Rentech on the turbine and waste heat boiler that was used in the modeling. I am traveling this morning but will try to get it to you by close of business today. At this point, we have not included makeup water reheat or blowdown heat recovery in the model.

Thanks Jed.

Regards,

Gregory S. Hester, PE LEED AP

<image002.jpg>
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860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Monday, December 4, 2017 at 4:41 PM
To: Greg Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || Newport Naval Base Model

Do you folks have a PID drawing around just the Energy Efficiency equipment in question?

Taurus 70, HRSG(X equipment), Duct Burner catalog etc. Are you reheating make up water, blow off any other pertinent items to the model?

Also not sure if I asked you but do you have the catalog cutsheet that the Taurus 70 efficiency, consumption and output was built off?

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Thursday, November 30, 2017 9:35 AM
To: Ferris, Gerald Jr; naveen kapur
Subject: Re: EXT || Newport Naval Base Model

Good morning Jed,

I sent you an invitation just now to Dropbox to download the model. I cannot send it directly via email due to size.

A few quick comments/notes:

We updated the model using more current Solar Turbine performance data as they often modify their engines and software in an effort to gain additional efficiencies. Hence, the numbers in this model are slightly different than the numbers shown below. You will see that the kWh generated in the model is higher but so is the fuel consumption.

We should walk through the thermal savings numbers and how you want to break them out. The navy conveyed to us that they burn about 62% natural gas and 38% fuel oil. The turbine alone can offset about 81% of the annual steam generated by the 7CC central boiler plant and with the duct burner this increases to about 98%. The remaining 2% was carried due to planned and unplanned outages for the turbine/hrsg.

Please let me know when you have had a chance to download the model and we can set up a call to go through the sheets so you can better understand how it is set up. Per our previous correspondence, I would appreciate it if you can limit the number of people this is distributed to for intellectual capital reasons.

Thanks Jed.

Regards,

Gregory S. Hester, PE LEED AP

<image003.jpg>
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Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
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From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Monday, November 27, 2017 at 1:11 PM
To: Greg Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Subject: RE: EXT || Newport Naval Base Model

I am not sure which option we settled on? Whatever one that gave us these inputs to our BCR.

[redacted] generated, [redacted] oil removal, [redacted] consumed and [redacted] recovered off the unit. [redacted] O&M costs.

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NE CHP Project Manager
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From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, November 27, 2017 10:08 AM
To: Ferris, Gerald Jr; naveen kapur
Subject: EXT || Newport Naval Base Model

Good morning Jed,

In speaking with Naveen, it looks like the NDA is almost complete and I would like to prepare the model so that I can send it to you. We have

looked at a large number of options for the Naval Base and I have dozens of models saved. Can you clarify for me, what specific option NGRID and the Navy is looking to move forward with at this point? Please see below:

Taurus 70 or Mercury 50?
If Taurus 70, Dual Fuel or Natural Gas Only?
Duct Burner? Y/N
Turbine in Operation When Central Steam Plant Not in Operation? Y/N
(i.e. operate during late spring, summer and early fall)
Add Condensing Steam Turbine to Allow for Summer Operation? Y/N
Add Absorption Chiller to Allow for Summer Operation? Y/N
Include Contribution from Existing Backpressure Steam Turbine? Y/N

Thanks Jed. I hope you and your family had a nice Thanksgiving.

Regards,

Gregory S. Hester, PE LEED AP

<image004.jpg>
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860-883-6486 C
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Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 12/20/2017 5:19:25 PM
To: Moshier, Andrea [andrea.moshier@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]
Subject: Re: EXT || Newport Naval Base Model

Jed what do you think ?

Sent from my iPhone

On Dec 20, 2017, at 12:17 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

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To: Ferris, Gerald Jr
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>
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> Gerald.ferris@nationalgrid.com
>
> ---
>
> **From:** Moshier, Andrea
> **Sent:** Tuesday, December 19, 2017 4:17 PM
> **To:** Ferris, Gerald Jr
> **Subject:** RE: EXT || Newport Naval Base Model
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>
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> ---
>
> **From:** Ferris, Gerald Jr
> **Sent:** Tuesday, December 19, 2017 4:11 PM
> **To:** Moshier, Andrea
> **Subject:** Re: EXT || Newport Naval Base Model
>
> Yeah I just called them
>
> Thanks Jed

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Andrea Moshier, CEM
Supervisor, EE Technical Services
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Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

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Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 12/20/2017 4:14:48 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: RE: EXT || Newport Naval Base Model

Andrea and I were discussing it this morning
Whatever approach that you an Andrea determine will get the project reviewed the quickest should probably be the path to take
Even if it's not using their data and having our own TA vendor review from scratch without their model

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Wednesday, December 20, 2017 11:10 AM
To: Dunham, Jeffrey B.; Paine, Fred; Moshier, Andrea
Subject: FW: EXT || Newport Naval Base Model

So the Navy Contractor got wind that we hired an outside vendor to review the calculations and feels we violated our NDA. The company we hired according to him is a direct competitor. I tried to explain that we were swamped and would not be able to meet any time table that would work.

I am not sure how to proceed. I can suggest this guy come to our facility and review with Dinesh directly and TR (Andrea?) but that cannot occur until January. If we are going to go that route, let schedule it now with Dinesh. He is going on vacation after today until January 2nd.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Moshier, Andrea
Sent: Tuesday, December 19, 2017 4:17 PM
To: Ferris, Gerald Jr
Subject: RE: EXT || Newport Naval Base Model

Oh boy.

Would they go for another of our TA vendors? Is there somebody they don't consider a competitor.

Andrea Moshier, CEM
Supervisor, EE Technical Services
nationalgrid

280 Melrose Street
Providence, RI 02907

(o) 401.784.7414
(m) 401.603.8866

From: Ferris, Gerald Jr
Sent: Tuesday, December 19, 2017 4:11 PM
To: Moshier, Andrea
Subject: Re: EXT || Newport Naval Base Model

Yeah I just called them

Thanks Jed

On Dec 19, 2017, at 3:55 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

> Should I tell Dennis to pause his analysis?
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services
> nationalgrid
>
> 280 Melrose Street
> Providence, RI 02907
>
> (o) 401.784.7414
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>
> ---
>
> **From:** Ferris, Gerald Jr
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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 12/20/2017 2:34:50 PM
To: Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: FW: EXT || RE: actual cost for electric and gas for CHP analysis

Kwh and Therm rates are shown below for the Navy CHP.

Gerald (Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
Sent: Wednesday, December 20, 2017 9:32 AM
To: Dunham, Jeffrey B.; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Ferris, Gerald Jr; Sprague, James CIV NAVFAC MIDLANT, PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport; Jim Falsetti; Breckner, John K CIV NAVFAC MIDLANT, PW; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport
Subject: EXT || RE: actual cost for electric and gas for CHP analysis

The purchase costs I expect for NAVSTA Newport to pay to National Grid are as follows:
For main base account only remaining as a G62 customer and generally staying at the same general level of consumption at [redacted] annually. If switched to G32 customer then add 3% to the unit costs shown below. If consumption drops significantly then the unit price could and is expected to increase to balance National Grid operational requirements. The effects of renewable energy assets and penetration are not included. FY 17 and 18 reflect the marketer price because NAVSTA Newport has a commodity supply contract through a marketer and if the standard offer prices are used then the unit price would be 3% to 4% higher.
These prices exclude any Navy Labor , operation & Maintenance and major repair costs.
FY17 [redacted]
FY18
FY19
FY20

Based on largest 5 accounts (7CC, 27A, A6, 1CC, 1276FFT) including interruptible account at Central Steam plant. There would be a 3 to 5% increase if the interruptible account were changed to firm supply conditions.
These prices exclude any fuel oil usage either #2 or #4 fuel oils and any MBTU related to fuel oil usage. Fuel; oil usage is also related to the amount of curtailments imposed by National Grid. Market fluctuation can account for price differences up to 50% and on an average account for 10 to 20% differences.
FY17 [redacted]
FY18
FY19
FY20

John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

-----Original Message-----
From: Dunham, Jeffrey B. [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Monday, December 18, 2017 10:37 AM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Ferris, Gerald Jr; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Sprague, James CIV NAVFAC MIDLANT, PWD Newport; Carlson, James F CIV NAVFAC MIDLANT, PWD Newport; Jim Falsetti
Subject: [Non-DoD Source] actual cost for electric and gas for CHP analysis

John
I really would rather this not be an item that holds up the review, please provide this requested information as soon as you can thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)

National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dunham, Jeffrey B.
Sent: Tuesday, December 05, 2017 11:13 AM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Ferris, Gerald Jr; 'Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport'
Subject: actual cost for electric and gas
Importance: High

Hi John
As discussed on the phone this morning can you verify/provide what the Navy pays for electric and gas .
Total cost including supply, distribution, etc For example is it 13 cents per kwh and $1.10 a therm?
If you can turn this around quickly it will be appreciated thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
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401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Monday, December 04, 2017 4:39 PM
To: Dunham, Jeffrey B.; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Subject: RE: actual cost for electric and gas

Hi folks,

Was this question answered? I might have missed it. Sending this into tech review and wanted to ensure I had everything.

Thanks

Jed

Gerald (Jed) Ferris
NE CHP Project Manager
National Grid
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401 784-7364 Work
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Gerald.ferris@nationalgrid.com <mailto:Gerald.ferris@nationalgrid.com>

From: Dunham, Jeffrey B.
Sent: Tuesday, November 07, 2017 11:31 AM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Ferris, Gerald Jr
Subject: actual cost for electric and gas
Importance: High

John
What is your annual average cost per kwh and per therm for electric and gas Is it 13 cents for electric and $1.10 for gas

I only have access to your distribution piece which is approximately [redacted] and the gas ranges from [redacted]

thanks
Jeffrey Dunham
Certified Energy Manager

LEED Accredited Professional (AP)
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315-460-8954 Fax

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 12/20/2017 6:46:28 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: RE: EXT || Newport Naval Base Model

I can do the tech review and Dinesh do the peer review. That's what I want but Mark won't let me.

Gerald (*Jed*) Ferris
NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Paine, Fred
Sent: Wednesday, December 20, 2017 12:19 PM
To: Moshier, Andrea
Cc: Ferris, Gerald Jr; Dunham, Jeffrey B.; Dipetrillo, Mark
Subject: Re: EXT || Newport Naval Base Model

Jed what do you think ?

Sent from my iPhone

On Dec 20, 2017, at 12:17 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

> Hello,
>
> We can (and are) looking at options for internal resources in January.
> At this point, there are two or three working days left for most of us in 2017.
>
> In addition to vetting the savings model, there is also documentation. The vendor did not provide any write up, or explanation of assumptions or anything like that. On a big project, its important for our reviewers, the customer and the eventual evaluator to document everything well.
>
> I see two options:
>
> 1. Ask this vendor to write a report. Jed, under separate cover I can send you our requirements for a TA study. They are the implementer, so we will not pay.
> 2. Have our TA vendor to a TA study. We can send them the data, and they have already planned resources to help us with this. If we feel the customer has already provided 'in kind' type services we could waive the co-pay.
>
> I guess a third option would be to ignore their complaints, but not sure that's a good one.
>
> Andrea
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services

nationalgrid
280 Melrose Street
Providence, RI 02907
(o) 401.784.7414
(m) 401.603.8866

From: Paine, Fred
Sent: Wednesday, December 20, 2017 11:27 AM
To: Ferris, Gerald Jr
Cc: Dunham, Jeffrey B.; Moshier, Andrea
Subject: Re: EXT || Newport Naval Base Model

I hate when vendors perceive us of handing work over to a competitor. Like the Navy vendor I would me upset.
I would try to accommodate the navy vendor

Sent from my iPhone

On Dec 20, 2017, at 11:09 AM, Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com> wrote:

> So the Navy Contractor got wind that we hired an outside vendor to review the calculations and feels we violated our NDA. The company we hired according to him is a direct competitor. I tried to explain that we were swamped and would not be able to meet any time table that would work.
>
> I am not sure how to proceed. I can suggest this guy come to our facility and review with Dinesh directly and TR (Andrea?) but that cannot occur until January. If we are going to go that route, let schedule it now with Dinesh. He is going on vacation after today until January 2nd.
>
> Gerald (*Jed*) Ferris
> NE CHP Project Manager
> National Grid
> 280 Melrose Street
> Providence RI 02907
> 401 784-7364 Work
> 401 450-9416 Cell
> Gerald.ferris@nationalgrid.com
>
> ---
>
> **From:** Moshier, Andrea
> **Sent:** Tuesday, December 19, 2017 4:17 PM
> **To:** Ferris, Gerald Jr
> **Subject:** RE: EXT || Newport Naval Base Model
>
> Oh boy.
>
> Would they go for another of our TA vendors? Is there somebody they don't consider a competitor.
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services
> nationalgrid

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Providence, RI 02907

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(m) 401.603.8866

From: Ferris, Gerald Jr
Sent: Tuesday, December 19, 2017 4:11 PM
To: Moshier, Andrea
Subject: Re: EXT || Newport Naval Base Model

Yeah I just called them

Thanks Jed

On Dec 19, 2017, at 3:55 PM, Moshier, Andrea <Andrea.Moshier@nationalgrid.com> wrote:

> Should I tell Dennis to pause his analysis?
>
> **Andrea Moshier, CEM**
> Supervisor, EE Technical Services
> nationalgrid
>
> 280 Melrose Street
> Providence, RI 02907
>
> (o) 401.784.7414
> (m) 401.603.8866
>
> ---
>
> **From:** Ferris, Gerald Jr
> **Sent:** Tuesday, December 19, 2017 10:31 AM
> **To:** Greg Hester; naveen kapur
> **Cc:** Dunham, Jeffrey B.; Jim Falsetti; Moshier, Andrea
> **Subject:** RE: EXT || Newport Naval Base Model
>
> Our Technical Assistance (TA) firms are contracted with a Nondisclosure agreement in place as an employee/representative of National Grid when we sign a contract with them. They are not allowed to use any portion of the study in any other capacity than what we contract them for which was to review savings and OEE numbers for adherence to our program metrics. They are not allowed to bid on any portion of this CHP project or in conjunction where conflict of interest would occur on any other CHP project. We have been very proactively policing our TA firms for that metric.
>
> We looked at this internally and had them sign an additional NDA just for this project to put them on notice the criticality of sharing this information. Unfortunately to keep the time table our internal people do not have the bandwidth to move this along properly for you and we felt that time was critical.
>
> If you feel you still object; to them gaining access I think we will have to re-assess the time frame that we gave you and discuss other methods and means to move this along.

Please feel free to call me direct and we can discuss what the next step should be.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Tuesday, December 19, 2017 10:22 AM
To: Ferris, Gerald Jr; naveen kapur
Cc: Dunham, Jeffrey B.; Jim Falsetti
Subject: Re: EXT || Newport Naval Base Model

Good morning Jed,

I received a notice from DropBox that Dennis Landsberg from L&S Energy Services wants to join the Navy folder to download the model and information. This is the concern I had originally with sharing the model. L&S is a competing firm to EBD Engineering and sharing our intellectual capital with a competing firm put us at risk. Please advise.

Regards,

Gregory S. Hester, PE LEED AP

<image001.jpg>
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, December 5, 2017 at 8:01 AM
To: naveen kapur <naveenk@nkengineers.com>, Greg Hester <greg.hester@ebdengineering.com>

Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || Newport Naval Base Model

Yes we are just trying to from a high level how everything is tied together. Such and Such Gas turbine feeds a blah blah blah sized heat recovery steam generator as well as capturing hot water here and there, out the stack. Cooling towers? Attached here? Perhaps estimate MBH on each loop if you can? If you cannot that is fine but at least we know how things are attached.

I am more concerned that folks will get confused about your chilled water references and want to ensure that this diagram is part of the study to confirm what is captured and used in the OEE numbers.

Gerald (*Jed*) Ferris
NE CHP Project Manager
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Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Tuesday, December 05, 2017 7:54 AM
To: Ferris, Gerald Jr; Greg Hester
Cc: Dunham, Jeffrey B.; Jim Falsetti
Subject: Re: EXT || Newport Naval Base Model

Jed
Are you looking to indicate possible interconnection points for the electric, steam feed water etc. or something else?

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, December 5, 2017 at 7:35 AM
To: Greg Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim

Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || Newport Naval Base Model

What about a hand sketch; or a square box diagram? Nothing binding but at least it conveys how things are hooked up with the current system and perhaps existing available data points?

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Tuesday, December 05, 2017 5:21 AM
To: Ferris, Gerald Jr; naveen kapur
Cc: Dunham, Jeffrey B.; Jim Falsetti
Subject: Re: EXT || Newport Naval Base Model

Good morning Jed,

We did not generate a P&ID yet. We typically generate one as part of the next phase of the design process once a project pencil's out on paper.

I will forward you the data we received from Solar and Rentech on the turbine and waste heat boiler that was used in the modeling. I am traveling this morning but will try to get it to you by close of business today. At this point, we have not included makeup water reheat or blowdown heat recovery in the model.

Thanks Jed.

Regards,

Gregory S. Hester, PE LEED AP

<image002.jpg>
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Monday, December 4, 2017 at 4:41 PM
To: Greg Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>, Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: RE: EXT || Newport Naval Base Model

Do you folks have a PID drawing around just the Energy Efficiency equipment in question?

Taurus 70, HRSG(X equipment), Duct Burner catalog etc. Are you reheating make up water, blow off any other pertinent items to the model?

Also not sure if I asked you but do you have the catalog cutsheet that the Taurus 70 efficiency, consumption and output was built off?

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
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401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Thursday, November 30, 2017 9:35 AM
To: Ferris, Gerald Jr; naveen kapur
Subject: Re: EXT || Newport Naval Base Model

Good morning Jed,

I sent you an invitation just now to Dropbox to download the model. I cannot send it directly via email due to size.

A few quick comments/notes:

We updated the model using more current Solar Turbine performance data as they often modify their engines and software in an effort to gain additional efficiencies. Hence, the numbers in this model are slightly different than the numbers shown below. You will see that the kWh generated in the model is higher but so is the fuel consumption.

We should walk through the thermal savings numbers and how you want to break them out. The navy conveyed to us that they burn about

62% natural gas and 38% fuel oil. The turbine alone can offset about 81% of the annual steam generated by the 7CC central boiler plant and with the duct burner this increases to about 98%. The remaining 2% was carried due to planned and unplanned outages for the turbine/hrsg.

Please let me know when you have had a chance to download the model and we can set up a call to go through the sheets so you can better understand how it is set up. Per our previous correspondence, I would appreciate it if you can limit the number of people this is distributed to for intellectual capital reasons.

Thanks Jed.

Regards,

Gregory S. Hester, PE LEED AP

<image003.jpg>
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
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860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Monday, November 27, 2017 at 1:11 PM
To: Greg Hester <greg.hester@ebdengineering.com>, naveen kapur <naveenk@nkengineers.com>
Subject: RE: EXT || Newport Naval Base Model

I am not sure which option we settled on? Whatever one that gave us these inputs to our BCR.

[redacted] generated, [redacted] oil removal, [redacted] consumed and [redacted] recovered off the unit. [redacted] O&M costs.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, November 27, 2017 10:08 AM
To: Ferris, Gerald Jr; naveen kapur
Subject: EXT || Newport Naval Base Model

Good morning Jed,

In speaking with Naveen, it looks like the NDA is almost complete and I would like to prepare the model so that I can send it to you. We have looked at a large number of options for the Naval Base and I have dozens of models saved. Can you clarify for me, what specific option NGRID and the Navy is looking to move forward with at this point? Please see below:

Taurus 70 or Mercury 50?
If Taurus 70, Dual Fuel or Natural Gas Only?
Duct Burner? Y/N
Turbine in Operation When Central Steam Plant Not in Operation? Y/N
(i.e. operate during late spring, summer and early fall)
Add Condensing Steam Turbine to Allow for Summer Operation? Y/N
Add Absorption Chiller to Allow for Summer Operation? Y/N
Include Contribution from Existing Backpressure Steam Turbine? Y/N

Thanks Jed. I hope you and your family had a nice Thanksgiving.

Regards,

Gregory S. Hester, PE LEED AP

<image004.jpg>
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Greg.Hester@EBDEngineering.com
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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/10/2018 8:14:58 PM
To: Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: FW: EXT || RE: Naval Station Newport CHP Questions

I'm assuming you don't want/need to be copied on Navy CHP progress like the below; let me know if you do.

Mark

-----Original Message-----
From: Sevier, Mark
Sent: Wednesday, January 10, 2018 3:13 PM
To: 'Reichert, John C CIV NAVFAC MIDLANT, PWD Newport'; Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport; Dion, Thomas
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

Hi John -

Thanks to everyone for getting the requested information.

I asked internally about NGrid gas service for the proposed Navy CHP plant, and was told that NGrid will be able to serve the proposed CHP plant winter gas load with a small system reinforcement, so my understanding is that the Navy's main steam plant will not need to continue to be interruptible from NGrid's perspective. In my role (calculating the NGrid benefit/cost ratio for the CHP based on savings estimation), I need to have reasonably accurate operating parameters & expected fuel blend for the proposed CHP plant, which is why I'm bringing this up as something that might need more discussion, so we make sure we're all on the same page about plant operation & expected fuel mix.

Let me know if I can help facilitate this discussion, as appropriate.

Thanks,
Mark

-----Original Message-----
From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
Sent: Wednesday, January 10, 2018 8:32 AM
To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
Subject: EXT || RE: Naval Station Newport CHP Questions

Bob Mulhern provided the information in the attached email.

Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.

The makeup water will be required as a part of the CHP design and the existing system would have to be modified for this purpose. NAVSTA Newport still does not know details about the boilers related to the CHP and any specific requirements for electricity, steam, water, chemicals, size, data, security and controls and makeup water requirements for the CHP.

John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]

Sent: Monday, January 08, 2018 10:52 AM
To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
Subject: [Non-DoD Source] Naval Station Newport CHP Questions

Good morning Dan and John,

Jim, Naveen and I have been working with National Grid on the CHP project and they are requesting additional information to update the model to make sure nothing substantial has changed that would affect the benefits of the project. Can you please review the list below and call me at your convenience to discuss?

1. Can you please provide the make and model of the existing steam meters at the boiler plant and when they were last calibrated?
2. Can you confirm if there is a water meter at the boiler plant that can be used to verify makeup water to the boiler system? If so, can you please provide water usage figures?
3. Can you please provide more recent steam metering data for the 7CC boiler plant as the data in the model ended in May 2016? The data previously provided included steam flow per boiler as well as steam flow to the deaerator
4. Can you please provide #2 and #4 monthly fuel oil usage for the 7CC boiler plant for all of 2016 and 2017 to date?
5. Can you please provide the minimum steaming rate for boiler #4 when fired on natural gas?

Thank you both for your assistance.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street – Unit 31A

Marlborough, CT 06447

860-295-3220 O

860-883-6486 C

Greg.Hester@EBDEngineering.com

www.ebdengineering.com <http://www.ebdengineering.com>

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/18/2018 9:54:06 PM
To: Greg Hester [greg.hester@ebdengineering.com]
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

Hi Greg -

I think we've resolved most of the questions*, but it would be great if can touch base Friday AM to make sure. I'm available all day after 9a or so, except 1:30-2:30p, give me a call, or let me know when it would be convenient for you to talk.

* - I compared the Navy's more recent utility data with your 2015 model, and got everyone comfortable that 2017 is similar to the modeled year; I also spoke with Bob Mulhern about expected CHP & boiler operation. My only open issue from Navy is getting confirmation that they plan to run nearly 100% time on the gas CHP system for steam, vs historic operation with gas curtailment & oil use. Open question for you: Bob asked about minimum kpph from the CHP system and what will be done with excess steam, where it looks like 30 kpph is the CHP system minimum vs. their substantially lower usage in Oct/Nov/Dec & Apr/May.

Thanks,
Mark
781-907-2182

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, January 15, 2018 11:48 AM
To: Sevier, Mark
Subject: Re: EXT || RE: Naval Station Newport CHP Questions

Mark,

FYI, I am tied up on another project all week this week and won' t have a chance to look at the interval, fuel oil and gas data until Friday.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street - Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com <http://www.ebdengineering.com>

On 1/10/18, 3:13 PM, "Sevier, Mark" <Mark.Sevier@nationalgrid.com> wrote:

Hi John -

Thanks to everyone for getting the requested information.

I asked internally about NGrid gas service for the proposed Navy CHP plant, and was told that NGrid will be able to serve the proposed CHP plant winter gas load with a small system reinforcement, so my understanding is that the Navy's main steam plant will not need to continue to be interruptible from NGrid's perspective. In my role (calculating the NGrid benefit/cost ratio for the CHP based on savings estimation), I need to have reasonably accurate operating parameters & expected fuel blend for the proposed CHP plant, which is why I'm bringing this up as something that might need more discussion, so we make sure we're all on the same page about plant operation & expected fuel mix.

Let me know if I can help facilitate this discussion, as appropriate.

Thanks,

Mark

-----Original Message-----
From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
Sent: Wednesday, January 10, 2018 8:32 AM
To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
Subject: EXT || RE: Naval Station Newport CHP Questions

Bob Mulhern provided the information in the attached email.

Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.

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John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

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Sent: Monday, January 08, 2018 10:52 AM
To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
Subject: [Non-DoD Source] Naval Station Newport CHP Questions

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Regards,

Gregory S. Hester, PE LEED AP

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860-883-6486 C

Greg.Hester@EBDEngineering.com

www.ebdengineering.com <http://www.ebdengineering.com>

This e-mail, and any attachments are strictly confidential and intended for the addressee(s) only. The content may also contain legal, professional or other privileged information. If you are not the intended recipient, please notify the sender immediately and then delete the e-mail and any attachments. You should not disclose, copy or take any action in reliance on this transmission.

You may report the matter by contacting us via our UK Contacts Page<https://www.nationalgrid.com/uk/contact-us/> or our US Contacts Page<https://www.nationalgridus.com/contact-us> (accessed by clicking on the appropriate link)

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For the registered information on the UK operating companies within the National Grid group please use the attached link: https://www.nationalgrid.com/group/about-us/corporate-registrations

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/18/2018 9:02:42 PM
To: Patel, Dinesh [dinesh.patel@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: Navy CHP update

This morning, I talked to Bob Mulhern at the Navy, and learned:

They currently start the steam system in late Sept / Oct with a small (800 HP) boiler, and then start up a larger boiler with ~13 kpph minimum output once the load grows to that level. He agreed that the CHP system would likely integrate into this scheme as the first run large boiler, and that they could keep the back-up boiler hot using CHP system steam. They have multiple large boilers, where they rotate the main boiler every couple weeks to keep the corrosion chemicals up in all boilers, since they have no other way of introducing chemicals into the boilers.

As it relates to the minimum steaming rate, Bob Mulhern described that currently, boilers not in service are kept with a 'steam blanket' and are rotated to keep chemical levels up using boiler feedwater pumps, both to prevent corrosion. He mentioned the possibility of some sort of batch feedwater circulator system to keep chemicals in the boilers without firing them; I told him that could be considered as part of the CHP project, but that their current operation probably wouldn't affect our modeling that much, since it seems that they were used to having boilers idle and don't seem to need to keep them at minimum fire for a significant amount of time. I didn't happen to ask about outdoor temperature below which they would fire a boiler, but that only seems to affect the gas side of the estimates, and doesn't make a significant difference in any case, so I left the 30F OAT, and increased the 7.5 kpph to 13 kpph, which is what he said was the minimum turndown of the large boiler.

When I asked if the Navy would be likely to operate the CHP on a calendar schedule or thermal following, Bob asked about minimum steam output of the CHP system, which appears to me to be ~30 kpph based on the XL model. He then asked about how excess thermal would be managed, which I couldn't speak to; I will ask Greg about this tomorrow. In any case, he seemed confident they would run the system thermal following, and didn't envision running the CHP with lots of thermal rejection / when the steam network didn't need thermal.

I didn't remember to ask Bob about fuel mix once the CHP is in place, so I later sent him an e-mail with that question; it seems better to have something written anyway.

I also e-mailed Naveen & Greg asking for an estimated project cost, though, perhaps surprisingly, the BCR isn't very sensitive to the project cost.

I made a couple other changes to the model, based on yesterday's conversation:
Moved the CHP exhaust to steam efficiency from 100% to 97%, since the likelihood is there will be some degradation.
I looked at Erving & H&V CHP systems on the CDH datastream, and I verified the ~90% capacity factor, so I increased the 3 day outages to 6 days as discussed yesterday, to give the Navy estimate a similar capacity factor.

The XL model then comes up with just under [redacted] of electric production, [redacted] of oil savings, and around [redacted] of gas savings which comes in at a BCR of [redacted] using a [redacted] project cost; as I mentioned, the BCR is not very sensitive to project cost.

I hope to make any final tweaks to the model tomorrow after talking with Greg, then we should be able to finalize MRD values, and I can put together something of a project description from the ppt that Greg sent and other information.

Mark

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/22/2018 3:56:56 PM
To: Patel, Dinesh [dinesh.patel@nationalgrid.com]; Moshier, Andrea [andrea.moshier@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: Navy CHP MRD
Attachments: MRD - 7798641 NUWC_CHP_19Jan18msev.doc

Hi –

Attached is a proposed MRD for the Navy CHP, using savings values from the model based on the assumptions we agreed on last week. Let me know if I can provide any supporting info, or if you have comments.

MRD - 7798641 NUWC_CHP_19...

Thanks,
Mark

Minimum Requirements Document

nationalgrid

Customer Name	U.S. Navy, Newport RI	**EI or D2**	EI
Location	Building 7CC	**Application**	7798641
ECM:	Install one 7.965 MW Gas Turbine Generator with Heat Recovery Steam Generator		

This document specifies the agreed upon minimum equipment specifications and operational requirements of the proposed system. These requirements shall address the criteria necessary to be met to achieve the demand and energy savings estimated in the engineering analysis for this project. (Use additional sheets if necessary).

Pre-Construction	**SEQUENCE OF OPERATION**: Provide a description of equipment operating sequences, setpoints, operating schedules, balancing requirements (flow, velocity, head, etc) or any other required operating parameters **Submittals:** Provide major equipment data sheets
Yes ☐ No ☐	Milestone 1. Equipment submittal and approval of Sequence of Operation (SOO). Required Completion Date: Before the start of the combined heat and power (CHP) installation at the site and prior to approving submittals for the major equipment. 1. The [redacted] nominal Gas Turbine Generator (GTG) shall operate to serve **Thermal** loads through a heat recovery steam generator (HRSG) and duct burner when the site's steam distribution system is active. The GTG is expected to have an exhaust diverter valve to allow partial thermal utilization of the HRSG during part load conditions, but sustained use of 100% heat rejection for more than 1 week beyond the site's winter heating steam load is considered not meeting this MRD. The GTG, HRSG, and duct burner compose the main components of the CHP plant, and shall be used as the lead boiler at the Building 7CC boiler plant, which is the central plant for the site's steam distribution system. 2. Provide a process and instrument diagram (PID) showing all GTG plant equipment, electrical connections, fuel gas, and instruments including Btu meters. P&ID to show all the sensors and meter locations as required for measuring thermal and electrical efficiency. 3. Provide a copy of equipment submittals including performance ratings. 4. Provide documentation that the National Grid gas account for the GTG is on a firm delivery rate (non-interruptible). 5. Sequence of Operation: a. The CHP plant shall operate continuously from Mid-October through Mid-May while the site's steam heating distribution system is active. The CHP system is not expected to operate Mid-May to Mid-October when the steam distribution system is not active. The estimated annual operating time is 4,500 hours. b. The exhaust from the GTG shall be routed to the Heat Recovery Steam Generator (HRSG) with a duct burner that generates up to 100% of the site's steam load. The GTG exhaust will be supplemented as needed with additional heat input from a natural gas fired duct burner installed on the inlet to the HRSG. c. The HRSG may be operated in parallel with the existing boiler plant for redundancy, but the CHP is expected to be the first run large boiler. 6. The electrical output of the generator should not reach within 500 kW of the demand of the connected electrical loads. That is, should the thermal-following approach yield a combined electrical output that exceeds the electrical demand of the connected buildings, the output of the GTG shall be reduced such that there will always be at least 500 kW delivered from the grid. 7. BTU meters shall be installed to quantify the total useful thermal output of the HRSG and duct burner. 8. All electric and gas meters shall be utility grade; provide cut sheets to verify. 9. The [redacted] is designed to meet the following performance criteria for the year: a. Annual Production of [redacted] (accounting for parasitics; see Milestone 2a below) b. Gas fuel increase [redacted] s (fuel fired for cogen minus boiler fuel saved) HHV c. Oil usage reduction of [redacted] d. Boiler fuel offset of [redacted] e. Electrical efficiency 29% (net output to the site, less CHP plant parasitics) f. Thermal efficiency 30% (net output to the site, less CHP plant parasitics) g. Plant overall efficiency must be a minimum of 55%, estimated efficiency is 59%

Post Inspection	**Installation Completion**: Provide a list of equipment or materials installed as part of this project. Include mfr, model, HP, kW, efficiency ratings, etc .and confirm completion
Yes ☐ No ☐	**Milestone 2a. Installation Completion** 1. Install one [redacted] GTG; Solar Taurus 70 model or equal. 2. Install one HRSG with a natural gas fired duct burner installed on the inlet. The exhaust to steam efficiency is expected be 97% or higher. The efficiency of the duct burner is estimated to be 96%. 3. GTG unit shall meet the following criteria derived from the product data sheet: a. electric output: [redacted] nominal, not including parasitic loads (pumps and radiator fans) b. thermal output,[redacted] c. overall efficiency: 59% at full load based on [redacted] of fuel input (using HHV) d. HHV performance as follows: [redacted] e. Parasitic loads: estimated at [redacted] during full-load operation; inclusive of all pumps and fans; accounting for expected parasitic equipment loading at these conditions. 4. Install a Btu meter to measure the thermal output of the CHP unit(s). 5. Provide meters as required to monitor energy output, waste heat utilization and electrical power production. Both electric meters and gas meters shall have accuracy equal to utility grade meters. 6. Energy monitoring accuracy shall meet: a. As a minimum the system shall be able to capture 15-minute interval data for electricity produced, waste heat utilization, fuel input and power consumed by all auxiliary equipment. b. Fifteen-minute trends for gas input and engine run hours shall be provided. c. The control system should be capable of trending and archiving this data for a period of one year before overwriting. d. Archived data shall be capable of being exported to a designated ftp server via CSV compatible electronic files. 7. During post inspection confirm that data collection system is installed, connected to properly calibrated metering and reporting and archiving data properly.
Yes ☐ No ☐	**Milestone 2b. Demonstration of Operability** **(Completion of Milestone 2A and 2b is required for the payment of 80% of the incentive)** Confirm that the above noted equipment is installed and operational for completing Milestone 2b. Installed and operational is defined as : 1. All components of the new GTG including all meters are installed and connected to their respective building systems. Start-up and commissioning of the system is complete in accordance with equipment supplier recommendations and industry practice. 2. All equipment, piping, electrical and control wiring is completed, so that all CHP units can run in an automatic mode. The minimum performance shall be the following: a. Annual net Production of [redacted] kWh (accounting for parasitics; see Milestone 2a below) b. Boiler fuel offset of [redacted] (based on 82% overall boiler efficiency) c. Plant overall efficiency over 55%, estimated to be 59% 3. Interconnection facilities are completed and accepted by Retail Connections Engineering, and insurance certificates are in place. This does not absolve the customer from meeting any other jurisdictional permits or other regulatory requirements. 4. All instrumentation and meters required are installed and are working properly and porting data to remote website. 5. 15-minute interval data shall be made available and exported to remote website for access to National Grid in CSV format. 6. Customer and its vendors have completed their own commissioning with reports on major pieces of equipment provided.

	100%
Electrical output*	[redacted]
Fuel input (HHV avg)	
HRSG steam (avg)	
Electrical efficiency*	
Thermal efficiency*	

Post Operational Assessment	**DOCUMENTATION:** List written documentation required to train, verify, operate, or maintain the equipment being installed or controlled. This may include specification sheets, test reports, construction drawings, etc.**:** Provide a list of Trending Requirements required to verify proper system operation. Trends should document operational sequences, setpoints and scheduling of equipment as described in TA Study
Yes ☐ No ☐	**Milestone 3. (Completion of Milestone 3 & 4 is required for the payment of the remaining 20% of the incentive.)** Validate the following items: A. O&M manuals and documentation on site 1. O&M manuals for the following equipment: a. Combustion gas turbine b. Heat recovery Steam Generator c. Duct burner d. Metering equipment (gas, electric) 2. Design Drawings (Process and & Instrument Diagrams and Mechanical Piping Drawings, Instrumentation List and equipment Data Sheets) are available on site: a. Facility layout drawings b. Process & Instrument Diagrams c. One line diagrams d. Instrument list e. Equipment data sheets 3. Meter calibration data has been provided for all meters identified in this MRD B. Availability of trend data and confirming of its exportability. 1. Provide 15-minute interval data for the following points as a minimum. Provide the capacity for and enable trend data archiving for a period of at least one year. a. Gross and net (after parasitics) kW and kWh electrical output – including parasitic consumption measurements b. Fuel input to CHP plant (therms or MMBtu) c. Flow/temperature on heat recovery supply/return d. Any point necessary to determine other parasitic loads, based on the final plant design 2. Provide ability to export weekly data electronically to third party via email or FTP at all times. 3. Post operational assessment process will require functional testing of the CHP and the thermal and electrical interface to the buildings, a minimum 2 weeks and up to 6 months of concurrent 15 minute interval data for all points noted above. If equipment fails to meet expected sequences of operations and corrections are needed, additional trend data shall be provided to confirm any seasonal changes in operations. 4. Install, maintain, and calibrate measurement, monitoring and data recording equipment for the lifetime of the project in compliance with ISO-New England's Manual for Measurement and Verification of Demand Resources, including: a. Meet or exceed the relevant American National Standard Institute or equivalent standard for the equipment. b. Meet the relevant Institute of Electrical and Electronics Engineers standards for equipment installed and measuring electric demand on electric circuits with significant harmonics and have a digital sampling rate of at least 2.6 kHz. c. Utilize a pulse rate within the resolution capabilities of the recorder, if recording pulses from measurement and monitoring devices. d. Have an accuracy of no less than +/-2% using a true Root Mean Square measurement device to measure electrical demand or using any measurement or monitoring equipment for proxy variables to calculate electrical demand. e. Install measurement or monitoring devices that direct measure electrical demand from three-phase devices such that measurements are taken on all three-phases to account for any phase imbalance or an equivalent method that can measure electrical demand using two phases. f. Include the power factor of the end-uses in the demand calculations if measuring current and nominal voltage to calculate electrical demand. g. Synchronize data recorders with the National Institute of Standards and Technology to an

	accuracy of +/- 2 minutes per month. h. Calibrate to meet or exceed Federal Energy Management Program Measurement and Verification Guidelines, applicable American Society of Heating, Refrigeration and Air Conditioning Engineers standards, National Institute of Standards and Technology, or equivalent standard for the equipment and provide meter calibration data. i. Ensure all measurement, monitoring and data logging equipment is maintained to meet or exceed industry and manufacturer maintenance standards and maintain documentation on all such calibration activities. j. Collect electricity usage data at a frequency of 15 minute intervals or less. C. Sequence of operation is working as outlined in MRD, TA report and supporting energy saving calculations.
Post Inspection	**OTHER REQUIRMENTS:** Describe any requirements for demolition, removal, etc of existing equipment.
Yes ☐ No ☐	**Milestone 4** 1. Customer will have a minimum 3 year or first major overhaul maintenance contract to help achieve long term proposed operational strategies and energy cost savings. Normal planned /routine maintenance shall be conducted where possible during National Grid off-peak billing periods. 2. Provide detailed project cost breakdown by major system components. Provide copies of paid invoices to support the project costs.

The pre-approved incentive is subject to Retail Companies' POST INSPECTION of final specifications, drawings and operation of the proposed equipment. In the event the proposed system is altered from the above description, notify the Company of the change prior to the equipment purchase and installation as the change in design and operation may impact the available incentive.

Tech Support Rep	Date	Customer Signature	Date

Attachment: P&ID dated x/x/20xx

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/26/2018 2:53:54 PM
To: Patel, Dinesh [dinesh.patel@nationalgrid.com]
CC: Moshier, Andrea [andrea.moshier@nationalgrid.com]
Subject: Navy CHP revised MRD
Attachments: MRD - 7798641 NUWC_CHP_26Jan18_revd.doc; GTB-XFL-1205 Duct Fired Performace.pdf

Hi Dinesh –

I got more detail on the HRSG boiler & duct burner, and updated the MRD with this info, both attached. I uploaded both documents to InDemand, so as long as you're happy with this additional info, as far as I'm concerned we're ready to sign off.

MRD - 7798641 NUWC_CHP_26...

GTB-XFL-1205 Duct Fired Perfor...

Thanks,
Mark

Confidential Document Withheld from Production

Confidential Document Withheld from Production

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 1/29/2018 3:37:40 PM
To: Hermanowski, Jessica [jessica.hermanowski@nationalgrid.com]
Subject: Application No. 7798641 US Navy Naval Station- CHP -- RI 2018 EI Custom
Attachments: Scanned from a Xerox Multifunction Printer.pdf; MRD - 7798641 NUWC_CHP_29Jan18_signed.pdf

Please attach pre insp and Ngrid signed MRD (if Andrea did not already attach)
thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Jeffrey.Dunham@nationalgrid.com [mailto:Jeffrey.Dunham@nationalgrid.com]
Sent: Monday, January 29, 2018 10:24 AM
To: Dunham, Jeffrey B.
Subject: Scanned from a Xerox Multifunction Printer

Please open the attached document. It was scanned and sent to you using a Xerox Multifunction Printer.

Attachment File Type: pdf, Multi-Page

Multifunction Printer Location: SERVICE COMPANY INC , PROVIDENCE, RI
Device Name: XRXNGUS128MFD15

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Energy Initiative

nationalgrid

Custom Pre-Installation Site Inspection Form

Customer Report: U S NAVY NAVAL STATION
Billing Acct Number: [redacted]
Application Number: 7798641
Report Date: 01-29-2018

Pre-Installation Inspection Date: 9-27-17 **Company Rep.:** Jeffrey Durham
Vendor Present (name): NO
Customer Present (name): John Beckett
Manager's Signature: _____ **Date:** 1/29/18

Verification of system and current operation:

- o Verify operating schedules
- o For lighting, verify the quantities and types of fixtures, ballasts and lamps and determine the percentage of inoperable fixtures.
- o For other equipment, verify age, quantities, and nameplate data
- o Verify temperature of pressure control set points and sequence of operation

Opened fixtures: #_____or %_____ Counted fixtures/units such as motors, air conditioning etc.: #_____ or %_____

Site inspection during construction : [redacted]

(List dates and comments): _____

Notes: _____

Confidential Document Withheld from Production

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 1/29/2018 5:35:30 PM
To: Gari, Nicolae [nicolae.gari@nationalgrid.com]
Subject: RI-25455229 Newport- CHP

HI Nicholae,

I am unsure the path you want these folks to take on this project? They have already submitted an application in the old system.

Let me know.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Alicia Scott [mailto:outlook_4FEC63C6F5138E63@outlook.com] **On Behalf Of** Alicia Scott
Sent: Monday, January 29, 2018 10:19 AM
To: Jim Falsetti; Ferris, Gerald Jr
Cc: Michael McNulty; Dunham, Jeffrey B.
Subject: EXT || Re: Newport- CHP- Phone call follow up

Jed,

I have attached the original email that we received from Nicolae at National Grid regarding our next steps in the interconnect process for our CHP project. Step/Link 1 leads to a contact form that I have filled out three times with no response. Step/Link 2 leads to a large document with no forms to fill out and it appears the only forms it refers to are the forms we filled out during our initial application.

Any help that you can offer regarding what we should be doing next is greatly appreciated.

Best,
Alicia Scott

Assistant Project Manger
(845)594-7629

Dear customer,

Please disregard the previous email received.
The previous email would apply if we would have the case when the Interconnecting Customer should decide who they should sell the power to.

However this application has a no-export request with the amount of generation planned to offset the existing facility load.

Our preliminary analysis determined that the proposed system will be a non-export behind the load facility supplied by a National Grid transmission line at 69kV.
This interconnection application will have to follow the process dictated by ISO-NE Tariff. This interconnection proposal requesting interconnection in parallel with a National Grid transmission supply system should consult the Company's Transmission Planning Department. Please check enclosed below for a direct link, please follow the link and proceed with all requirements and an account manager will contact you shortly.
https://www9.nationalgridus.com/transmission/c4-1_newgenerator.asp

National Grid - New Generator Documentation

www9.nationalgridus.com

New Generator Documentation Define your profile below to view the applicable information:

This interconnection application also requires compliance with ESB 756 , *'Supplement to Specifications for Electrical Installations'*, Appendix D for RI. Enclosed below is a direct link to the document:
https://www9.nationalgridus.com/non_html/ESB756--1217_ver3_1%20complete.pdf

ESB756--0617 ver3 1 12-15-2017

www9.nationalgridus.com

National Grid / Supplement to Specifications for Electrical Installations / ESB 756-2017 ver. 3.1 - 2 - For the latest authorized version please refer to the Company ...

For load customers (end-user facilities such this case) wishing to connect to the Company's transmission supply system should consult the Company's ESB 750 Series for Upstate New York, Massachusetts, New Hampshire and Rhode Island. Please check enclosed below for a direct for ESB 750 document:
https://www9.nationalgridus.com/non_html/shared_constr_esb750.pdf

Specifications for Electrical Installations 2010

www9.nationalgridus.com

Specifications for Electrical Installations Covering National Grid's Service Areas in MA, NH, NY, and RI 2010

Additional interconnection requirements for new generation connections to the 115 kV and above in New York and 69 kV and above in New England transmission system shall conform with all applicable requirements of the NY or NE ISO Tariffs, respectively.

Please feel free to contact me back with any questions you may have.

Thank you

Nicolae Gari

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Sent: Friday, January 26, 2018 10:47 AM
To: Alicia Scott; Gerald(Jed) Ferris (Gerald.ferris@nationalgrid.com)
Cc: Michael McNulty; Dunham, Jeffrey B.
Subject: RE: Newport- CHP- Phone call follow up

Alicia, meet Jed. Jed, meet Alicia

Alicia, could you please send your CHP request to Jed? He will help us through the NGRID approval process. Please just copy Jeff and us on the correspondence.

Best,

Jim Falsetti **www.bqenergy.com**

BQ Energy llc

www.bqenergy.com

BQ Energy is the world's leader in renewable energy projects on brownfields and landfills. BQ Energy was created in 2002 specifically to develop wind energy ...

Phone/Text 203-512-7446

From: Alicia Scott [mailto:outlook_4FEC63C6F5138E63@outlook.com] **On Behalf Of** Alicia Scott
Sent: Wednesday, January 24, 2018 10:27 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>
Subject: Newport- CHP- Phone call follow up

Jim,
I just want to follow up on the phone call we had last week regarding the CHP interconnection. Where you able to get in touch with anyone at National Grid?

Thanks

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 1/30/2018 1:53:57 PM
To: DuPont, Alyssa [alyssa.dupont@nationalgrid.com]
Subject: Re: Application No. 7798641 US Navy Naval Station- CHP -- RI 2018 EI Custom

Thanks for the update

On Jan 30, 2018, at 8:38 AM, DuPont, Alyssa <alyssa.dupont@nationalgrid.com> wrote:

> Morning, I am!
>
> Vijay has been working on it since yesterday afternoon & should have it corrected this morning. They had a missing approver for the last lever which is causing the duplicate commitment tasks. He is supposed to go in, & add Terry after John (due to incentive size) which should correct the issue.
>
> I will let everyone know when it's rectified.
>
> Thank you,
>
> *Alyssa A. Dupont*
> Small Business Program Manager
> ☎508-860-6675 (Office)
> ☎508-431-6539 (Cell)
> nationalgrid

From: Dunham, Jeffrey B.
Sent: Tuesday, January 30, 2018 8:34 AM
To: DuPont, Alyssa
Subject: FW: Application No. 7798641 US Navy Naval Station- CHP -- RI 2018 EI Custom
Importance: High

Morning
I heard you are the one working on this
thanks

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dunham, Jeffrey B.
Sent: Tuesday, January 30, 2018 8:32 AM
To: Periyasamy, Vijayakumar
Cc: Paine, Fred; Ferris, Gerald Jr; Bolduc, Tracy L.; Isberg, John F.; Lonergan, Beth; Hermanowski, Jessica
Subject: RE: Application No. 7798641 US Navy Naval Station- CHP -- RI 2018 EI Custom
Importance: High

Morning VJ
Tracy is an In Demand error and should not be on this application. John cannot complete his task with Tracy in the que before him. Can you have Tracy removed from this application sometime today if possible. We have committed to the customer to provide a pre-approval letter by the end of Jan and John's task is the last item to completed. If you can reply to this e mail once it is all set it will be appreciated
Thanks
Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Isberg, John F.
Sent: Tuesday, January 30, 2018 8:28 AM
To: Dunham, Jeffrey B.; Bolduc, Tracy L.
Cc: Paine, Fred; Ferris, Gerald Jr
Subject: RE: Application No. 7798641 US Navy Naval Station- CHP -- RI 2018 EI Custom

Tracy,

Let me know when complete and I will approve after you.

John

From: Dunham, Jeffrey B.
Sent: Monday, January 29, 2018 1:18 PM
To: Isberg, John F.; Bolduc, Tracy L.
Cc: Paine, Fred; Ferris, Gerald Jr
Subject: Application No. 7798641 US Navy Naval Station- CHP -- RI 2018 EI Custom

John/Tracy

Please complete your tasks at your earliest convenience, once your tasks are completed I can send the Navy pre approval letter to the Navy. We had a call with the Navy today I informed them that they should see the pre-approval letter in the next day or so…

Thanks
Jeff
<< OLE Object: Picture (Device Independent Bitmap) >>

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 1/31/2018 6:18:08 PM
To: Alicia Scott [alicia.scott@bqenergy.com]; Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Michael McNulty [michael.mcnulty@bqenergy.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: EXT || Re: Newport- CHP- Phone call follow up

Hi everyone,

I was told our screening team got in contact with your engineers today and direction was given for the next step. I believe it was a revision for one line diagram etc.

Let me know if you do not have a clear path.

Thanks

Jed

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Alicia Scott [mailto:outlook_4FEC63C6F5138E63@outlook.com] **On Behalf Of** Alicia Scott
Sent: Monday, January 29, 2018 10:19 AM
To: Jim Falsetti; Ferris, Gerald Jr
Cc: Michael McNulty; Dunham, Jeffrey B.
Subject: EXT || Re: Newport- CHP- Phone call follow up

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ESB756--0617 ver3 1 12-15-2017

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Jim Falsetti **www.bqenergy.com**

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To: Jim Falsetti <jim.falsetti@bqenergy.com>
Cc: Michael McNulty <michael.mcnulty@bqenergy.com>
Subject: Newport- CHP- Phone call follow up

Jim,
I just want to follow up on the phone call we had last week regarding the CHP interconnection. Where you able to get in touch with anyone at National Grid?

Thanks

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/31/2018 8:42:05 PM
To: Dennis R. Landsberg [DLandsberg@LS-Energy.com]
CC: Moshier, Andrea [andrea.moshier@nationalgrid.com]; 'Brendan Kelly (L&S Energy Services)' [bkelly@ls-energy.com]; 'Michael Stiles' [mstiles@ls-energy.com]
Subject: RE: EXT || Re: Navy CHP model questions

Thanks Dennis

On point #5, while playing with the model's economics, we observed that thermal rejection at part load made the project economics look better for the customer, so we ended up with that assumption (operating at 100% when there was a campus steam load) as their expected operating scheme, since the overall system efficiency was still above our 55% requirement. The thermal load data used in the other model had zero usage through the summer (5/9 to 10/15), so it seems like we have different steam loads in the different models. FWIW, it would be a bit more convenient for me if both models went Jan 1 to Dec 31 2015, so I could more easily assess consistency on things like the steam load and weather information.

Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Wednesday, January 31, 2018 3:06 PM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP model questions

Mark:

Questions are clear – we will get back to you.

1. No, don't have to limit to ISO rating – will check.
2. Used the OSA temperature that came with the steam data file.
3. Will check enthalpy and verify
4. We will check the gas use increase – I believe I had oil consumption and cost in the base case.
5. We made the turbine thermal following – by turning unit off in summer it doesn't go below 50% so we are not really running it for half the hour. Mathematically, running the unit for 30 minutes at full load or 60 minutes at half load gives the same result. (simplification wouldn't work if we didn't turn off unit in summer).

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

President
L&S Energy Services, Inc.
35 Via Paradiso St.
Henderson, NV 89011

Tel (702) 280-5742
Fax (518) 383-9406
DLandsberg@LS-Energy.com

www.LS-Energy.com

From: Sevier, Mark [mailto:Mark.Sevier@nationalgrid.com]
Sent: Wednesday, January 31, 2018 11:37 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>; 'Brendan Kelly (L&S Energy Services)' <bkelly@ls-energy.com>; 'Michael Stiles' <mstiles@ls-energy.com>
Subject: RE: EXT || Re: Navy CHP model questions

Hi Dennis -

Overall, the L&S analysis is fairly close to the other analysis we've been reviewing if I align a few assumptions. A few questions:

- Is there a particular reason to limit the turbine kW output to the ISO rating? The kW vs OSA T tab shows the output exceeding the ISO rating as the temperature falls, which matches the manf. ratings, and accounts for much / most of the expected operating season.
- What weather station and weather year did you use, and does it align with the steam usage information?
- The enthalpy of the returning condensate doesn't appear to be being deducted from the steam heating load.
- The output tab appears to overstate the gas use increase, as it doesn't appear to take into account the oil savings – can you provide an oil / gas fuel savings summary based on the base year fuel consumption, and update the gas use increase value?
- How does this comment: "If the hourly building steam load < max hourly output from turbine, shut off turbine for a portion of the hour so that steam lbs/hr X run time = hourly load" affect the kWh savings analysis, if the turbine runs full time during those hours?

If it makes sense to discuss the above on a call, let me know what date / time is best for you.

Thanks,
Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Monday, January 29, 2018 12:15 PM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP Schedule Update

Thank you.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

President
L&S Energy Services, Inc.

35 Via Paradiso St.
Henderson, NV 89011

Tel (702) 280-5742
Fax (518) 383-9406
DLandsberg@LS-Energy.com
www.LS-Energy.com

From: Sevier, Mark [mailto:Mark.Sevier@nationalgrid.com]
Sent: Monday, January 29, 2018 8:59 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>; 'Brendan Kelly (L&S Energy Services)' <bkelly@ls-energy.com>; 'Michael Stiles' <mstiles@ls-energy.com>
Subject: RE: EXT || Re: Navy CHP Schedule Update

Thanks Dennis; I'll let you know if we have questions / comments.

Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Monday, January 29, 2018 11:54 AM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP Schedule Update

Mark:

Calculation attached.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

President
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35 Via Paradiso St.
Henderson, NV 89011

Tel (702) 280-5742
Fax (518) 383-9406
DLandsberg@LS-Energy.com
www.LS-Energy.com

From: Sevier, Mark [mailto:Mark.Sevier@nationalgrid.com]
Sent: Monday, January 29, 2018 8:03 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>
Subject: RE: EXT || Re: Navy CHP Schedule Update

Good morning Dennis –

How is the CHP study coming along? I'd be happy to review calculations / early results.

Thanks,
Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Friday, January 26, 2018 10:03 AM
To: Moshier, Andrea
Cc: Sevier, Mark
Subject: RE: EXT || Re: Navy CHP Schedule Update

Andrea:

Absolutely. Have a nice weekend.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

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Tel (702) 280-5742
Fax (518) 383-9406
DLandsberg@LS-Energy.com
www.LS-Energy.com

From: Moshier, Andrea [mailto:Andrea.Moshier@nationalgrid.com]
Sent: Friday, January 26, 2018 4:02 AM
To: Dennis Landsberg <dlandsberg@ls-energy.com>
Cc: Sevier, Mark <Mark.Sevier@nationalgrid.com>
Subject: Re: EXT || Re: Navy CHP Schedule Update

Please send the draft to Mark and me.
Thanks

Sent from my iPhone

On Jan 25, 2018, at 11:25 AM, Dennis Landsberg <dlandsberg@ls-energy.com> wrote:

> We have been making great progress despite two of us being out sick. Mike Stiles is finishing his part today. I will finish my part tomorrow. Will prepare narrative over the weekend. Monday morning we will do a review and then turn it over to you.
>
> Dennis Landsberg
>
> Sent from my iPhone
>
> On Jan 25, 2018, at 8:02 AM, Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com> wrote:

> This e-mail, and any attachments are strictly confidential and intended for the addressee(s) only. The content may also contain legal, professional or other privileged information. If you are not the intended recipient, please notify the sender immediately and then delete the e-mail and any attachments. You should not disclose, copy or take any action in reliance on this transmission.
>
> You may report the matter by contacting us via our UK Contacts Page or our US Contacts Page (accessed by clicking on the appropriate link)
>
> Please ensure you have adequate virus protection before you open or detach any documents from this transmission. National Grid plc and its affiliates do not accept any liability for viruses. An e-mail reply to this address may be subject to monitoring for operational reasons or lawful business practices.
>
> For the registered information on the UK operating companies within the National Grid group please use the attached link:
> https://www.nationalgrid.com/group/about-us/corporate-registrations
>
> <mime-attachment.ics>

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 1/31/2018 7:37:01 PM
To: Dennis R. Landsberg [DLandsberg@LS-Energy.com]
CC: Moshier, Andrea [andrea.moshier@nationalgrid.com]; 'Brendan Kelly (L&S Energy Services)' [bkelly@ls-energy.com]; 'Michael Stiles' [mstiles@ls-energy.com]
Subject: RE: EXT || Re: Navy CHP model questions

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Sent: Monday, January 29, 2018 8:03 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>
Subject: RE: EXT || Re: Navy CHP Schedule Update

Good morning Dennis –

How is the CHP study coming along? I'd be happy to review calculations / early results.

Thanks,
Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Friday, January 26, 2018 10:03 AM
To: Moshier, Andrea
Cc: Sevier, Mark
Subject: RE: EXT || Re: Navy CHP Schedule Update

Andrea:

Absolutely. Have a nice weekend.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

President
L&S Energy Services, Inc.
35 Via Paradiso St.
Henderson, NV 89011

Tel (702) 280-5742
Fax (518) 383-9406
DLandsberg@LS-Energy.com
www.LS-Energy.com

From: Moshier, Andrea [mailto:Andrea.Moshier@nationalgrid.com]
Sent: Friday, January 26, 2018 4:02 AM
To: Dennis Landsberg <dlandsberg@ls-energy.com>
Cc: Sevier, Mark <Mark.Sevier@nationalgrid.com>
Subject: Re: EXT || Re: Navy CHP Schedule Update

Please send the draft to Mark and me.

Thanks

Sent from my iPhone

On Jan 25, 2018, at 11:25 AM, Dennis Landsberg <dlandsberg@ls-energy.com> wrote:

> We have been making great progress despite two of us being out sick. Mike Stiles is finishing his part today. I will finish my part tomorrow. Will prepare narrative over the weekend. Monday morning we will do a review and then turn it over to you.
>
> Dennis Landsberg
>
> Sent from my iPhone
>
> On Jan 25, 2018, at 8:02 AM, Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com> wrote:

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> <mime-attachment.ics>

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 2/7/2018 10:09:30 PM
To: Dennis R. Landsberg [DLandsberg@LS-Energy.com]
CC: Moshier, Andrea [andrea.moshier@nationalgrid.com]; 'Brendan Kelly (L&S Energy Services)' [bkelly@ls-energy.com]; 'Michael Stiles' [mstiles@ls-energy.com]
Subject: RE: EXT || Re: Navy CHP model questions

Hi Dennis –

It looks like the XL file is still using the absolute enthalpy of the steam to calculate energy use; do you disagree with using the enthalpy rise at the boiler/CHP plant, as opposed to the absolute enthalpy of the delivered steam? (impacts gas use and efficiency calculations, that I'm trying to align; I pointed your 'model' tab calculations that use 'input B38' to 'input B10', and come much closer to the other model)

On the input tab, B27 shows 89% for HRSG "assumed conversion efficiency", which is used on the model tab to calculate duct burner gas use. From what I understand, duct burners operate at nearly 100% efficiency, since they essentially don't change the exhaust gas temperature when the boiler is designed for the duct burner, as it would be in this case; in our other model, we used 96%. Do you have supporting information for the 89% or contradictory information for our 96% assumption that I can review?

Now that the model is based on 2015 steam loads, the baseline gas & oil use should be for CY2015 as opposed to winter '15-16. Surfing the web, I came up with:
#4 oil: [redacted]
#2 oil: [redacted]
Overall I arrived at a baseline of [redacted] which reduces the increase in gas use for the CHP system. I came up with [redacted] and [redacted] though the oil use went down significantly from 2015 to 2017. In the end, I used 2017 data to make our proposed savings claim and assumed the customer will still use [redacted] of oil in their boilers, which was ~20% of the expected boiler fuel use. The other model ran a boiler at minimum fire of 13 kpph whenever OAT got below 30F, so ended up with a bit larger post project boiler energy use, though these values aren't very large or far apart in the grand scheme.

In other model, we decided on 3 winter outages of 6 days, which yields an overall schedule of:

Down Time			
1	Start	1/1/15 0:00	6.1
	Stop	1/7/15 0:00	
2	Start	3/15/15 0:00	6.1
	Stop	3/21/15 0:00	
3	Start	5/10/15 0:00	157.2
	Stop	10/15/15 0:00	
4	Start	11/14/15 0:00	6.1
	Stop	11/20/15 0:00	

Note that 'start' refers to the beginning of the outage, and 'stop' refers to resuming CHP operation.

When I make the above changes to the model you sent, I'm quite close to the other savings estimate, but I want to make sure you agree with how I'm getting there, so let me know if you have any comments.

Regards,
Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Sunday, February 04, 2018 7:20 PM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP model questions

Mark:

I converted the model to 2015 with the turbine off from 5/9 to 10/15.

Please note the steam plant is shutdown 3/9-3/14. I filled in steam data in red.

Also, to provide 85% availability, I turned the turbine off for 5 days, in Jan, Feb, Mar, Apr, Nov and Dec. I do not know if this occurs in the other model. A "1" in column F turns the turbine on in any given hour so this is an easy adjustment.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

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From: Sevier, Mark [mailto:Mark.Sevier@nationalgrid.com]
Sent: Wednesday, January 31, 2018 12:42 PM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>; 'Brendan Kelly (L&S Energy Services)' <bkelly@ls-energy.com>; 'Michael Stiles' <mstiles@ls-energy.com>
Subject: RE: EXT || Re: Navy CHP model questions

Thanks Dennis

On point #5, while playing with the model's economics, we observed that thermal rejection at part load made the project economics look better for the customer, so we ended up with that assumption (operating at 100% when there was a campus steam load) as their expected operating scheme, since the overall system efficiency was still above our 55% requirement. The thermal load data used in the other model had zero usage through the summer (5/9 to 10/15), so it seems like we have different steam loads in the different models. FWIW, it would be a bit more convenient for me if both models went Jan 1 to Dec 31 2015, so I could more easily assess consistency on things like the steam load and weather information.

Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Wednesday, January 31, 2018 3:06 PM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP model questions

Mark:

Questions are clear – we will get back to you.

1. No, don't have to limit to ISO rating – will check.
2. Used the OSA temperature that came with the steam data file.
3. Will check enthalpy and verify
4. We will check the gas use increase – I believe I had oil consumption and cost in the base case.
5. We made the turbine thermal following – by turning unit off in summer it doesn't go below 50% so we are not really running it for half the hour. Mathematically, running the unit for 30 minutes at full load or 60 minutes at half load gives the same result. (simplification wouldn't work if we didn't turn off unit in summer).

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
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From: Sevier, Mark [mailto:Mark.Sevier@nationalgrid.com]
Sent: Wednesday, January 31, 2018 11:37 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>; 'Brendan Kelly (L&S Energy Services)' <bkelly@ls-energy.com>; 'Michael Stiles' <mstiles@ls-energy.com>
Subject: RE: EXT || Re: Navy CHP model questions

Hi Dennis -

Overall, the L&S analysis is fairly close to the other analysis we've been reviewing if I align a few assumptions. A few questions:

- Is there a particular reason to limit the turbine kW output to the ISO rating? The kW vs OSA T tab shows the output exceeding the ISO rating as the temperature falls, which matches the manf. ratings, and accounts for much / most of the expected operating season.
- What weather station and weather year did you use, and does it align with the steam usage information?
- The enthalpy of the returning condensate doesn't appear to be being deducted from the steam heating load.
- The output tab appears to overstate the gas use increase, as it doesn't appear to take into account the oil savings – can you provide an oil / gas fuel savings summary based on the base year fuel consumption, and update the gas use increase value?
- How does this comment: "If the hourly building steam load < max hourly output from turbine, shut off turbine for a portion of the hour so that steam lbs/hr X run time = hourly load" affect the kWh savings analysis, if the turbine runs full time during those hours?

If it makes sense to discuss the above on a call, let me know what date / time is best for you.

Thanks,
Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Monday, January 29, 2018 12:15 PM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP Schedule Update

Thank you.

Dennis

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From: Sevier, Mark [mailto:Mark.Sevier@nationalgrid.com]
Sent: Monday, January 29, 2018 8:59 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>

Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>; 'Brendan Kelly (L&S Energy Services)' <bkelly@ls-energy.com>; 'Michael Stiles' <mstiles@ls-energy.com>
Subject: RE: EXT || Re: Navy CHP Schedule Update

Thanks Dennis; I'll let you know if we have questions / comments.

Mark

From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Monday, January 29, 2018 11:54 AM
To: Sevier, Mark
Cc: Moshier, Andrea; 'Brendan Kelly (L&S Energy Services)'; 'Michael Stiles'
Subject: RE: EXT || Re: Navy CHP Schedule Update

Mark:

Calculation attached.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

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Sent: Monday, January 29, 2018 8:03 AM
To: Dennis R. Landsberg <DLandsberg@LS-Energy.com>
Cc: Moshier, Andrea <Andrea.Moshier@nationalgrid.com>
Subject: RE: EXT || Re: Navy CHP Schedule Update

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From: Dennis R. Landsberg [mailto:DLandsberg@LS-Energy.com]
Sent: Friday, January 26, 2018 10:03 AM
To: Moshier, Andrea
Cc: Sevier, Mark
Subject: RE: EXT || Re: Navy CHP Schedule Update

Andrea:

Absolutely. Have a nice weekend.

Dennis

Dennis R. Landsberg, PhD, PE, CEM, LEED AP, BEAP
Fellow ASHRAE, CP EnMS – Industrial
SEP Performance Verifier – Industrial

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Sent: Friday, January 26, 2018 4:02 AM
To: Dennis Landsberg <dlandsberg@ls-energy.com>
Cc: Sevier, Mark <Mark.Sevier@nationalgrid.com>
Subject: Re: EXT || Re: Navy CHP Schedule Update

Please send the draft to Mark and me.
Thanks

Sent from my iPhone

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> Dennis Landsberg
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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 2/8/2018 3:47:04 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Notification of Navy offer to PUC
Attachments: REF B NAVFAC ESF Cover Memo - P-602_3 Pillars of Energy Security.pdf

Flag: Follow up

Hi –

In the end, the Navy BCR screening had no BCR oddities that should require special explanation. The proposed CHP project passed the BCR test using the estimated and vetted electric, oil, and negative gas savings, including CO2 benefits, as well as O&M costs and CHP economic benefit factors, in the same manner as the entire 2018 RI EE programs. Note that this winter-only CHP project has no summer kW savings, and therefore no T&D benefits claim.

The oil savings are a result of the customer switching to firm gas supply for the CHP (vs formerly being interruptible), and greatly reduces the amount of #4 oil the customer will burn going forward, helping to move Navy Station Newport toward lower carbon fuels, and higher overall fossil fuel efficiency, which is a goal of the NAVFAC, as in the attached. The CHP is not planned to burn oil, but the Navy will retain dual fuel capability for heating the Base using the pre-existing boiler plant, should there ever be an interruption in the gas supply, maintaining national security while improving operational efficiency. Although the CHP project was considered in isolation to the associated PV installation, I estimate the net effect of the proposed combined CHP + PV project to be more than a 50% reduction in net electricity delivered to the Navy's site (not all electricity planned to be purchased by the Navy, but electrically speaking). None of these special benefits were included in the Navy CHP BCR test, since the CHP project passed the 2018 RI BCR test without them, avoiding the need to investigate specific dollar values.

Mark

From: Henschel, Rachel
Sent: Wednesday, February 07, 2018 11:14 PM
To: Sevier, Mark
Subject: FW: Notification of Navy offer to PUC

FYI – I'm going to send the notification of Navy CHP to PUC – it's a short and sweet letter but they can hold a tech session on this. I'm hoping if they have a session it will occur while you're still at Grid. I would like help on talking to the screening/benefits.

From: Henschel, Rachel
Sent: Wednesday, February 07, 2018 11:13 PM
To: Ferris, Gerald Jr; Dunham, Jeffrey B.
Cc: Paine, Fred
Subject: RE: Notification of Navy offer to PUC

Jeff & Jed,

Can one of you get me more information on the customer – info that the Commissioners would be interested on. It was requested in the email below.

I will circulate a draft next week for additional information. I need to get this filed the week of the 19th. The PUC then has 30 days to call for a tech session if they chose. They did this for Toray.

--Rachel

From: Ferris, Gerald Jr
Sent: Thursday, February 01, 2018 2:10 PM
To: Dunham, Jeffrey B.; Henschel, Rachel
Cc: Paine, Fred
Subject: RE: Notification of Navy offer to PUC

I don't believe she asked you to pull it back. She was following up on the fact she has to notify the PUC not that we have to notify them first and get their approval.

I don't have the signed version; can you get her a signed version of the offer letter to use when letting the PUC know about it?

The next steps in the process:

- Navy to accept offer and sign offer letter.
- Sign Contract between Navy and Developer including our offer of financial in that negotiation (We steered this deal)
- Continuing the Interconnection application Study and following that path to completion for construction on Ngrid side to support. (Feb 2018-Nov 2019)
- Sign Contract with National Grid Gas to upgrade system to provide Firm Gas to CHP. (May 2018-Nov 2019)
- Design, Bid and Build unit. (June 2018-Nov 2019)
- Post Inspection (Nov 1st 2019) and Commission (Dec 2020)

Offer letter is based on exceeding the 55% system efficiency metric and meeting all the demands as outline in the Minimum Requirement Document.

Hope this helps.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Thursday, February 01, 2018 1:30 PM
To: Henschel, Rachel
Cc: Ferris, Gerald Jr; Paine, Fred
Subject: Re: Notification of Navy offer to PUC

Rachel
Letter is sent I am not comfortable recalling it at this point

On Feb 1, 2018, at 12:51 PM, Henschel, Rachel <Rachel.Henschel@nationalgrid.com> wrote:

Jeff & Jed,

Hey, I'm following up on the call last week about the Navy offer. For incentives over $3 million, we have to notify the PUC as we discussed. Did the clause get added to the final letter that said "regulatory approval pending" or whatever? The plan language is below so you can see what the requirement is.

I will start working on the notification letter or ask John Richards to work on it. I will work with Raquel to file it. I will send you both a draft before hand to review.

To help with drafting the letter, I'm going to need some language to explain the project and process to the PUC:

- Can you send me the final offer letter? Can the offer letter be filed with this notification or should it not be public?
- Please send me one paragraph on what the next steps in the process are – very high level that a laymen will understand – this is so that the commission is assured we have lots more steps going on – e.g. is there a study or bid process coming up?
- Please send me one paragraph describing the customer, the location, the specs on the CHP, the timeframe

- I plan to leave out all mention of cost effectiveness and summer peaking only to the PUC

- One paragraph on what this offer letter is based on (e.g. it passed initial screening, customer information, etc)

Plan language (page 29):
In addition, the Company will file a written notification with the PUC of any energy efficiency incentive annual offer in excess of $3 million. The project, the incentive, and any other related proposals will be authorized to proceed after thirty days from the notice filing unless the PUC suspends the filing and/or issues an order within such 30-day period to extend the time for purposes of further review.

~~~~~~~~~~~~~~~~~~~~~~
Rachel Henschel
Manager, Rhode Island Strategic Business, Policy & Evaluation
National Grid
781-907-1555 (w)
Take the Rhode Island Energy Challenge
~~~~~~~~~~~~~~~~~~~~~~

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
1322 PATTERSON AVENUE, SE SUITE 1000
WASHINGTON NAVY YARD DC 20374-5065

11300
Ser 00/i33
JUL 13 2017

From: Commander, Naval Facilities Engineer Command (NAVFAC)
To: Deputy Chief of Naval Operations (Readiness and Logistics)
Deputy Commandant of the Marine Corps (Installations & Logistics)

Subj: INSTALLATION ENERGY SECURITY FRAMEWORK

Ref: (a) Installation Energy Security Framework Memo, DASN (Energy, Installations and Environment), of June 7, 2017

Encl: (1) P-602, "3-Pillars of Energy Security (Reliability, Resiliency, and Efficiency)" of June 2017

1. Per reference (a), Naval Facilities Engineering Command (NAVFAC) has developed enclosure (1) to address reliability, resiliency, and efficiency benchmarks.

2. Enclosure (1) forms the new basis for standardized energy security performance benchmarks across the Department of the Navy. Additionally, it includes definitions, best practices and has the capability to holistically measure an installation's energy efficiency performance and program. This guidance provides basic principles for planning, evaluating, and measuring energy security. Enclosure (1) includes:

a. Reliability benchmarks - Service disruption frequency and duration measurements with best practices comprised of utility infrastructure risk assessments, preventive maintenance improvements, and Master Plans incorporating strategic utility investments.

b. Resiliency benchmarks - Design standards for redundancy, uninterruptible power, and storage requirements with best practices that include partnering with commercial utility providers, increasing microgrids, and leveraging technology to improve resiliency.

c. Efficiency benchmarks - Energy data management and analytics, diverse energy projects across funding streams, and integration of IT systems to enhance capabilities with best practices covering third-party financing, operating cost savings, and distributed generation.

3. Enclosure (1) also establishes utility performance standards, measurement standards, and planning methods to enable NAVFAC's Utility Mission Integration Group and Commander Navy Installations Command and Marine Corps Installation Command energy project prioritization processes to optimize project selection based on highest energy security risk and reward.

4. Per reference (a), enclosure (1) should be used to conduct a gap analysis and prioritize requirements.

Subj: INSTALLATION ENERGY SECURITY FRAMEWORK

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Naval Facilities Engineering Command

P-602
3 Pillars of Energy Security
(Reliability, Resiliency, & Efficiency)
June 2017

[redacted]

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1.0	NAVFAC HQ				

Preface

1. Department of Navy (DON) facilities and utilities personnel at all levels need a consistent understanding of energy systems, standards of energy system operations, terminology, and methods for utility project development in order to effectively optimize the DON program for energy security. Planning methods must provide holistic consideration for system reliability, resiliency, and efficiency to ensure a common operating framework and mission focused solutions. The Chief of Naval Operations identified energy security as a strategic imperative, stating that "shore energy security is the mitigation of vulnerabilities related to the electrical grid." (Ref. a). The U.S. Marine Corps Assistant Deputy Commandant noted that "Success will require …Energy Security solutions that mitigate the effects of supply disruptions on mission essential functions." (Ref. b)

2. Purpose and Scope. The purpose of this guide is to provide:

a. Guidelines for evaluating and measuring energy security and,

b. Best practices for utility system management.

The guidelines and best practices are intended to assist in identification of Energy Security gaps, which, if resolved, can contribute to mission assurance. Projects to address these gaps should be identified and may be pursued based on life cycle cost effectiveness or to the ability to mitigate unacceptable risks from the lack of reliability or resiliency. Considering resource limitations, the guidelines and best practices take into consideration life cycle costs, cost/benefit analysis, and risk mitigation associated with addressing energy security gaps.

Security of electric energy is the primary focus of this guide. However, similar security principles apply to other energy-related commodities, such as water, natural gas, propane, liquid fuels, steam, and availability of renewable energy.

3. Energy Security Guidelines. Per 10 USC § 2924 (Ref. c), Energy Security is defined as having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements. As shown in Figure 1, reliability, resiliency, and efficiency form the Three Pillars of Energy Security.

Figure 1

Planners should consider the three pillars when evaluating electrical and other utility system performance." Make this the last sentence of the previous paragraph, and delete the rest of the current, proposed paragraph.

4. Priorities and Funding. Energy reliability and resilience are desirable, but not all facilities require high levels of reliability and resilience. Priorities for reliability and resiliency are the energy security gaps identified during mission assurance evaluations. Resources available for closing energy security gaps include: Sustainment, Restoration, and Modernization (SRM) funds, Conservation Investment Program (ERCIP) funds, and Military Construction (MILCON) funds. Planners can also consider third-party financing opportunities, such as Energy Savings Performance Contracts (ESPC), Utility Energy Service Contracts (UESC), Power Purchase Agreements (PPA), Enhanced Use Leases (EUL), and Utility Privatization (UP), where applicable.

Due to expected future improvements in energy system technology and potential refinements in policy, this guide is issued as version 1.0. As energy technology and policy evolves, this guide will also go through iterative modernization.

R. David Curfman

R. D. Curfman, P.E.
Assistant Commander for
Public Works

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q. UFC_3_550_07 OPERATION AND MAINTENANCE EXTERIOR POWER DISTRIBUTION SYSTEMS 2017-01-19 OMT
r. BMS B-5.2.11 Utility Strategic Investment Plan
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Section 1 Definitions

- ***Energy Security Definition***

  Energy Security is defined as having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission essential requirements. (Ref. c)

- ***Reliability Definitions***

  1. **Reliability** is the percentage of time energy delivery systems (utilities) can serve customers at acceptable regulatory standards. Reliability can be measured by the frequency and duration of service disruptions to customers. The value of reliability depends upon the magnitude of adverse effects an outage has on customers. Reliability is determined by the adequacy, security, and quality of two primary elements: supply (e.g. generation availability) and delivery. For example, Electric outages occur when critical control parameters for electricity fall outside allowable ranges for voltage, current, and frequency. Key attributes of a reliable electrical transmission and distribution system include:

     a. System is monitored and controlled to stay within acceptable limits during normal conditions.

     b. System controls limit the impact and scope of instability and cascading faults when outages occur.

     c. System operations can be restored promptly if power is lost.

     d. System is maintained and tested regularly per current industry standards.

  2. **Energy Route Diversity** is the number of delivery pathways a form of energy can use, such as electrical feeds, natural gas pipelines, and fuel delivery trucks. A singular pathway anywhere in route to the customer, i.e. the military installation, represents a vulnerability and risk to mission. This vulnerability is referred to as a Single Point of Failure (SPF) and should be considered in discussions with utility providers and/or mitigated where possible through route diversification and ensuring that multiple feeds are available through the commercial provider.

  3. **A utility interruption** is an unplanned or planned loss of utility service to one or more customers resulting from one or more outages on the distribution system for more than five minutes. Outages, excluding planned outages, are those detected at a customer's meter from any commercial or installation cause. If

commercial power is lost, yet facilities continue to provide power to a certain customer's meter (e.g. dropping non-essential loads and continuing to run co-generation), that event is not considered an outage for customers that continue to have sustained power.

- ***Resiliency Definitions***

1. **Resiliency** is the ability of a system to anticipate, resist, absorb, respond, adapt, and recover from a disturbance. Threats that may cause a disturbance include weather events, accidents, geo-magnetic storms, terrorism (Ref. d), fire, cyber-attack, and the effects of climate change e.g. sea level rise (Ref. e). Energy resiliency will ensure DON installations have the ability to both prepare for and recover from utility interruptions that impact mission assurance on installations.

2. **Contingency Outage Study** is a form of risk assessment unique to electrical systems that involves the deliberate modeling of the effects of the failure of each component of the system in terms of capacity and load support. Both component failure as well as corridor disruption are modeled (e.g. a truck takes down a pole with two circuits on it). Plans should be developed to accommodate the largest single contingency outage. Supporting Infrastructure for Critical Assets (SICA) should be reviewed at least one node beyond the fence line (Ref. f).

3. **DON installation microgrid** is an integrated electrical energy system consisting of multiple interconnected loads and distributed energy resources, which act as an integrated system controlled from a central location (see Appendix A). Microgrids normally operate connected to and are synchronous with the traditional centralized grid but can disconnect and function autonomously as physical and/or economic conditions dictate. NAVFAC P-601 Microgrid Design Guide (Ref. g) provides DON installations with a basic understanding of microgrid technology and a common methodology to identify requirements and develop conceptual designs. Key components of a microgrid are sensors and controls that provide the ability to rapidly reconfigure an electric distribution system to operate differently, with one or more of the following objectives:

   a. Isolate damaged distribution line segments and possibly back-feed loads downstream from the damage.

   b. Optimize the balance of distributed generation, renewable energy, and grid supplies for economic or other reasons.

   c. Prioritize loads to be served by constrained or curtailed sources of power.

4. **Fuel switching** is the ability to meet energy requirements using more than one fuel such as an electric generator that can run on natural gas or diesel fuel.

5. **"Islanding" capacity** is the number of hours or days critical energy needs can be met from resources internal to the installation such as stored or renewable energy sources when an installation is separated (disconnected) for any reason from the grid.

6. **Mission Critical Facilities** are designated from analysis of all threats and hazards, facility vulnerabilities, and importance to mission success or failure. Multiple commands or organizations may identify facilities as critical based on differing policy or requirements. The Mission Assurance (MA) Assessment program will identify Task Critical Assets (TCAs) which are assets termed critical from a DoD perspective. During MA assessments, Supporting Infrastructure for Critical Assets (SICA) will also be identified. Installation level organizations may identify facilities as critical/essential for local and/or DON missions. The Installation Commanding Officer (ICO) assesses facility or asset priorities, as this is a prerequisite for annual Continuity of Operations Plan (COOP) reviews. Table 2, Electrical Resiliency Requirements by Category Code, provides some criteria for identification of critical facilities, but the selected approach should be approved by the installation ICO.

7. **Mutual Aid** is a contingency plan in partnership with local utilities for obtaining temporary emergency services, replacements for critical equipment or work force resources to aid in restoration.

8. **Redundancy** or **Redundant Systems** refer to systems or sub-systems that mitigate vulnerabilities to Single Points of Failure (SPF).

9. **Restoration Priority** is the priority given to the repair and re-energizing of electric system components following a fault or failure. Commercial utilities are federally required to assign restoration and load shedding priorities to their facilities, including those that serve DON Installations. Advanced Metering Infrastructure (AMI) metering, microgrids, distribution automation, and facility energy management systems are all technologies being deployed within an installation to assure system resiliency through monitoring and rapid restoration (Ref. h).

- ***Efficiency Definitions***

1. **Efficiency** is the use of the minimal energy required to achieve the desired level of service. Aging infrastructure, outdated equipment, poor maintenance, and lack of awareness contribute to inefficiency.

2. **Covered facilities** per EISA 2007 (Ref. i) are federal facilities, including central utility plants and distribution systems and other energy intensive operations, that constitute at least 75% of facility energy use. The DON definition follows the DUERS Guidance (Ref. j) which clarifies covered facilities as 'DUERS Goal Subject Facilities (iNFADS infrastructure), enclosed, portable or re-locatable structures serviced by utilities.

3. **Curtailment, load shedding demand response, and interruptible utility commodity service agreements** allow for the ability to reduce the demand for a specific source of energy when requested. Many commercial suppliers provide economic incentives for coordinating types of agreements.

4. **Distributed Energy Resources (DER)** are resources that can be operated in parallel (or in synch) with commercial power or that can be operated synchronously with all assets online during an islanding event. Note that some forms of emergency generation do not fit this definition. These systems may not be designed to run for long periods (as opposed to units that are "continuous" or "primary power" rated), may not have appropriately rated or configured switchgear to synchronize to a grid, or may not have environmental ratings to allow long run times (such as a "Tier 3" or "Tier 4" EPA designation).

5. **Renewable energy goals** are based on the percentage of energy derived from renewable (or alternative) sources of energy. Renewable energy resources contribute to energy supply diversification and can extend the hours of operation from other forms of fuel storage.

6. **Smart Grid** is a cyber-secure integration of distribution system automation, system control and data acquisition (SCADA), building energy management and control systems, and AMI. It is a mechanism to optimize the use of equipment and facilities to better manage cost and resources.

Section 2 Performance Criteria – Reliability, Resiliency, and Efficiency

The DON recommends the following integrated performance criteria for reliability, resiliency, and efficiency:

Reliability

1. For utility reliability, DON shall employ the Institute of Electrical and Electronic Engineers (IEEE) Standard IEEE 1366 Guide for Electric Power Distribution Reliability Indices (Ref. k). Metrics for reliability of the electric system can be measured by tracking the duration and frequency of electrical outages. The indices include IEEE 1366 System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), and Availability. SAIDI, SAIFI, and Availability are universally accepted terms commonly used as reliability indicators by electric power utilities.

   a. SAIDI: The System Average Interruption Duration Index is the yearly average outage duration for each customer (Building, Pier, and Facility) served. SAIDI is calculated as the total number of customer outage minutes per year divided by the total number of customers served in a defined area. The units of measure are minutes/year.
      Example PWD Norfolk FY16
      SAIDI = Sum of customer outage durations (min) / Sum of Customers
      SAIDI = 370,221 customer minutes / 920 customers
      SAIDI = 402 [System Average Outage Duration (minutes/year)]

   b. SAIFI: The System Average Interruption Frequency Index is the yearly average number of interruption occurrences that a customer (Building, Pier, or Facility) experienced. SAIFI is calculated as the total number of customer interruptions divided by the total number of customers served in a defined area. The units of measure are outage occurrences/year.
      Example PWD Norfolk FY16
      SAIFI = Sum of customer outages / Sum of Customers
      SAIFI = 816 customer outages / 920 customers
      SAIFI = 0.89 [System Average Outage Frequency (outage occurrences/year)]

   c. Availability: The total percentage of time that customers had electricity.
      Example from PWD Norfolk FY16 data
      Availability = 1 – (SAIDI / total minutes per year)
      Availability = 1 – (402 minutes / 525,600 minutes)
      Availability = 0.999234 = 99.923%

d. The SAIDI, SAIFI, and Availability values provided in Table 1, Electrical Reliability Benchmark Criteria, for grid reliability are benchmark criteria to assess current system performance and identify the potential requirement for additional measures to improve reliability.

Table 1
Electrical Reliability Benchmark Criteria

Recommended Levels of Service			
Installation Type	SAIDI (Average outage duration in minutes per year)	SAIFI (Average interruption frequency of occurrence per year)	Availability (% of time utility is operable)
Naval Shipyards	60	1	99.9886%
Other Installations	120	2	99.9772%

Resiliency

1. Existing DON resiliency requirements for mission critical and mission essential facilities are summarized in Table 2, Electrical Resiliency Requirements by Category Code (CATCODE). The requirements are itemized by CATCODE and address minimum design standards for redundancy, uninterruptible power requirements, and storage requirements for islanding from commercial power.

Table 2
Electrical Resiliency Requirements by Category Code

UFC Source	Category Code	Facility Type	Redundancy Requirements	Uninterruptable Power Requirements	Fuel Storage Requirement
UFC 3-540-01	12330	Vehicle and Equipment Ready Fuel Storage	Emergency Generator	None	UFC Minimum
UFC 3-540-01	13120	Communications Relay Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13122	VHF/UHF Communications Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13135	Receiver Building	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13140	Telephone Exchange Building	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13150	Transmitter Building	Emergency Generator	UPS Required for communication	UFC Minimum

				equipment	
UFC 3-540-01	13372	Military Terminal Radar Approach Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13373	Fleet Area Control Surveillance Facility	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	13375	Air Surveillance Radar Facility	Emergency Generator	None	Provide fuel storage capacity for 24 hours of continuous generator operation.
UFC 3-540-01	14365	Operations Control Center	N+1 (Emergency Generator)	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	14380	Command, Control, Communication, Computers and Intelligence Facility (C4I)	N+1 (Emergency Generator)	UPS Required for communication equipment	UFC Minimum
UFC 3-540-01	51010	Hospital	N+1 (Emergency Generator)	UPS Requirements - See NFPA 110	Fuel Storage Requirements - NFPA 110
UFC 4-133-01N	13373/ 13372	Aviation Operation and Support Facilities	Emergency Generator	UPS Required for communication equipment	UFC Minimum
UFC 3-230-03	84110	Potable Treatment Facilities	Emergency Generator	UPS Required for control equipment	UFC Minimum
UFC 3-230-03	83110	Waste Water Treatment Facilities	Emergency Generator	UPS Required for control equipment	UFC Minimum
UFC 4-150-02	N/A	Dockside Utilities for Ship Service	Emergency Generator	None	UFC Minimum
UFC 4-722-01N	72235	USN and USMC Dining Facilities	(See UFC for Specific Requirements)	None	72 hours Storage (Mass Care Facility)
UFC 4-730-04AN	73020	Military Police Facilities	(See UFC for Specific Requirements)	UPS Required for special service equipment	See comments
UFC 4-730-10	73010	Fire Stations	(See UFC for Specific Requirements)	None	UFC Minimum
UFC 4-470-02N	74032	USN and USMC Fitness Centers	(See UFC for Specific Requirements)	None	See comments
	* DON Minimum Fuel Requirement	Seven days either in a dedicated on-site main fuel tank or from a confirmed delivery source. When the seven day requirement is accomplished by a delivery source, provide each generator set with a minimum local 24 hour capacity tank based on the full-load fuel consumption rate of the engine.			

2. In accordance with current UFC requirements, each DON installation shall meet the minimum electrical resiliency requirements summarized in Table 2.

    a. The minimum requirement (UFC 3-540-01 (Ref. l)) for fuel storage is seven days either in a dedicated on-site main fuel tank or from a confirmed delivery source. When the seven-day requirement is accomplished by a delivery source, provide each generator set with a minimum local 24-hour capacity tank based on the full-load fuel consumption rate of the engine.

    b. The storage requirement can be adjusted by the Regional Commander if it is documented in writing that mission operations require a different operational duration. Facilities that have more stringent requirements than the UFC minimum are noted on Table 2.

    c. Additionally, some facilities are planned and designed for specialized resiliency requirements not captured by the category codes in Table 2. Where CATCODES do not address the requirement, consider resiliency requirements identified in the facility's specific Basic Facility Requirements (BFR) document.

3. For Installations within electrical reliability benchmarks set in Table 1, there may be a business case to increase resiliency if the cost impact of an electrical outage or multiple outages exceeds the investment cost of the resiliency improvement. For example, if a Navy shipyard experiences an extended, unplanned electrical outage, the stranded labor and productivity costs will likely dramatically exceed the cost of installing backup generators. Investments that directly improve the electrical system's reliability should be considered as potentially cost-effective solutions.

    a. The Department of Energy has developed a methodology to determine cost impacts of outages documented in the National Renewable Energy Laboratory study *Valuing Energy Security: Customer Damage Function Methodology and Case Studies at DoD Installations* (Ref. m). Additional details including a sample business case analysis are displayed in Section 5 of the study.

4. If an activity is considering a central plant, microgrid and/or distributed generation system as an engineered solution to improve resiliency, minimum existing resiliency requirements include, but are not limited to, those found in Table 2. Facility-specific BFR and UFC must be met. Additional guidance on microgrids can be found in P-601 (Microgrid Design Guide) (Ref. g).

Efficiency

1. Efficiency is a key component of Energy Security. Minimizing energy use directly saves resources, reduces the size of resiliency solutions, extends the operational duration of stored fuel, and provides general benefits that result from less energy to secure. Aligned with SECNAV INSTRUCTION 4101.3A, (Department of the Navy Energy Program (Ref. n), the Navy will optimize energy efficiency and shore operational effectiveness across all installations. Effective efficiency programs include capable energy data management and analytics; planning, programming and execution of diverse energy projects across all funding streams; and integration of IT systems to enhance capabilities, which may include advanced technology such as AMI, SCADA, or Direct Digital Control (DDC), per Table 3, Energy Efficiency Benchmark Criteria. Actively managing facilities with critical loads and the highest potential for consumption reduction will enable cost-effective facility management, optimized load management, demand response programs, and enhanced energy reliability and resiliency. Integrating DDC and central energy management and controls at facilities with the highest energy reduction potential will further increase opportunities to meet all mission essential energy security requirements.

Table 3
Energy Efficiency Benchmark Criteria

Parameter	Navy Benchmarks	USMC Benchmarks
SECNAV Energy and Water Program Review	• BLUE Management Award (criteria provided in App. B)	• BLUE Management Award (criteria provided in App. B)
AMI, SCADA, or DDC of electrical, water, and steam systems	• Mission Dependency Index (MDI) >85 and/or • Covered FACILITIES with > 75% energy use	• MDI>85 and/or • Covered FACILITIES with > 75% energy use
NSGEM (Navy Shore Geospatial Energy Module) for targeted installation and facility level analysis	• Planned Projects address Top 50% highest energy consumption reduction potential relative to ASHRAE facility benchmarks • All energy data validated quarterly by PWD and FEC	
Energy Reduction Goal for measuring progress toward SECNAV Goals / Executive Orders	• Plan exists for 50% consumption reduction by 2020 (2003 baseline), 2.5% energy use intensity (EUI) per year reduction by 2025(2015 baseline) and 2% per year water intensity reduction from 2007 baseline	• Plan exists for 50% consumption reduction by 2020 (2003 baseline), 2.5% energy use intensity (EUI) per year reduction by 2025 (2015 baseline) and 2% per year water intensity reduction from 2007 baseline

Section 3 Best Practices

The DON shall approach Energy Readiness by systematically engaging in best practices on an ongoing day-to-day, month-to-month, and year-to-year basis to improve energy reliability, resiliency, and efficiency.

Reliability

Reliability is closely tied to the transmission and distribution system of the utility provider, configuration, condition and age of installation distribution systems and completion of a rigorous preventive maintenance program.

Best Practices:

1. **Assess utility infrastructure.** Conduct utilities infrastructure condition assessments and electrical utility system assessments to assess utility risk and perform periodic inspections. Conduct utility deep dives, Nodal analysis, or root cause analysis for systems that are underperforming towards reliability goals.

2. **Tracking and reporting utility outages** is essential in order to make informed programmatic decisions for utility investments. Report planned and unplanned outages in MAXIMO in compliance with BMS B-5.2.14 Utility Outage Reporting and Data Collection (Ref. o).

3. **Coordinate and partner with utility provider to reduce outages.** Ensure utility providers maintain their rights of ways with active vegetation and animal management to avoid easily preventable outages.

4. **Coordinate and partner with commercial utility to provide route diversity** to improve utility reliability. Request and negotiate with commercial utility providers for dual circuits to an installation's primary electric substations to improve energy security when cost effective. Where these substations are equipped only with a single transformer, request and negotiate with the commercial power provider to install a second transformer in parallel for system redundancy.

5. **Comply with standard practices** to improve reliability. Complete and maintain over-current protection coordination studies (every 5 years) per National Fire Protection Association (NFPA), Institute of Electrical and Electronics Engineers (IEEE), and American National Standards Institute (ANSI) standards to limit cascading failures.

6. **Execute preventive maintenance (PM) on electrical systems in accordance with industry standards** (ANSI/NETA MTS),DODI 4170.11 (Ref. p), and UFC_3_550_07 OPERATION AND MAINTENANCE EXTERIOR POWER DISTRIBUTION SYSTEMS 2017-01-19 OMT (Ref. q) to optimize equipment

life and reliability. PM should include updates to equipment condition ratings in MAXIMO.

7. **Improve/coordinate preventive maintenance activities** to improve reliability.

    a. Maintain protective relay coordination in consideration of current loads to identify potential over-sensitivity settings or calibration drift.

    b. Review critical energy and generation capacity requirements and compare them to available generation capacity, including energy storage if available, to ascertain the effects of load growth and changes in equipment status on islanding capacity and resiliency.

8. **Prioritize major maintenance repairs, MILCON recapitalization, ESPC and UESC projects** for efficiency and reliability as part of Master Planning activities with consideration of longer range issues, such as equipment retirements and installation changes anticipated for the near term and future in accordance and consideration with BMS B-5.2.11 Utility Strategic Investment Plan (Ref. r).

9. **Reduce delivered fuels dependence.** Investigate the cost availability and cost effectiveness of centralized natural gas distribution. Plan fuel switching and utilize renewable energy investments to reduce financial exposure to volatility in fuel markets and to improve the installation's duration in the event of an energy supply disruption.

10. **Increase local power generation** to improve reliability. The need for distributed generation and microgrid facilities is especially acute when the commercial electricity supplier(s) do not meet the standards for SAIDI described previously and there are facilities with high criticality that do not have redundant power supplies.

Resiliency

The resiliency and system redundancy capabilities of the electric supplier greatly influence the need for backup capacity and energy supplies. Resiliency depends largely on the level of partnership with commercial utilities, distributed generation capacity, and grid and microgrid configurations. Generation and microgrid planning can encompass a wide range of objectives ranging from serving the entire installation to optimizing secondary uses (such as steam or chilled water), and providing adequate "islanding" capacity.

Best Practices

1. **Conduct Value engineering** to incorporate resiliency into projects. For example, as part of a project to reduce line losses, it may be possible to replace portions of an above ground electrical

distribution system with underground feeders with greater reliability.

2. **Coordinate and partner with commercial utility provider** to improve resiliency. Access to equipment, material, and manpower from nearby commercial utilities through mutual aid agreements can significantly reduce the amount of time required to restore power after a major disturbance.

3. **Collaborate with commercial utility managers and fuel suppliers** to explore how they can help the DON to improve installation energy readiness.

    a. **Establish communication links with the serving utility at control centers** during microgrid and smart grid planning and design.

    b. **Establish a mutual aid agreement** to allow sharing of compatible materials and manpower in emergency situations. Most utilities have model agreements in place that provide for both local and regional responses.

    c. **Obtain system one-line drawings from the commercial utilities** serving the installation to better understand the installation's exposure to first and second contingency outages.

    d. **Obtain the commercial electric utilities' rotating blackout and service restoration plans** and negotiate for most favorable treatment.

4. **Improve resiliency to critical missions.** Assess critical infrastructure configuration and condition to evaluate capability to deliver electrical power to critical loads.

5. **Evaluate the cost/benefits of placing critical feeders underground.**

6. **Utilize Smart Grid technology** to improve resiliency. The ability to monitor the status of all energy supplies, distribution circuits, and load requirements is central to distribution management especially when employing microgrids. This ability is enhanced greatly by the monitoring of installation assets through AMI and electrical SCADA.

7. **Incorporate and integrate control and monitoring systems with the capability to respond to system status changes.** There is no DON requirement to install microgrids, but microgrid projects can be pursued where cost effective and when in support of mission requirements. Evaluate the capacity of existing and planned power generation and "islanding" capability when considering microgrids.

8. **Evaluate fuel requirements for backup and distributed generation** to determine maximum operating time to serve critical loads in the event of grid failure.

9. **Incorporate renewable energy to reduce fuel consumption when cost effective.**

10. **Integrate batteries, thermal energy storage and other energy storage solutions** when cost effective to optimize the use of renewable generation resources.

11. **Integrate existing backup diesel generators into microgrids** when equipment meets environmental requirements and prime mover equipment is cost effective and practical.

12. **Anticipate** in the design of microgrids the need to periodically test equipment in order to ensure the microgrid will perform as required under emergency conditions. **Develop testing procedures and protocols for full-scale test** that include operating all energy generation systems, infrastructure and equipment. Testing should include islanding (disconnect from local commercial power) and black-start of onsite generation. At minimum, a full-scale test should be conducted on an annual basis.

Efficiency

Energy efficient shore facilities contribute to operational effectiveness, energy security, and energy affordability. Operational effectiveness is improved by reducing the resources needed to sustain support operations. Increasing the energy-efficiency of existing facilities is the most effective way to reduce consumption, protect critical assets, and increase the impact of distributed energy resources.

Best Practices

1. **Utilize third-party financing** (ESPC and UESC) to increase efficiency across whole installations, and reduce capital outlay for energy projects and EULs, as in Model 2's of the REPO Program and PPA's with an EUL as in Model 3's of the REPO Program. Utilize "bundling" approach where long payback Energy Conservation Measures (ECMs) coupled with short payback ECMs achieve a more complete and usable system (Ref. s).

2. Operating cost savings from cost-effective energy conservation measures and energy efficiency improvements can often pay for the required investment. The DON will strive to achieve its energy efficiency targets using the following strategies:

    a. Installations are to **complete a comprehensive energy and water evaluation** for approximately 25 percent of the "covered

facilities" in a manner that ensures evaluation of each such facility at least once every four years per the Energy Independence and Security Act of 2007. Low or no cost energy conservation measures should implemented, and resources should be obtained to implement other cost-effective measures.

b. **Invest in energy management systems** such as DDC, utility SCADA and AMI to provide installations with building-level reporting of energy consumption.

c. **Deploy Smart Grid systems to leverage all aspects of energy infrastructure.** Smart Grids have the potential to help sustain the benefits of investing in energy conservation measures and facility maintenance through increased monitoring and control capabilities. In a cyber-secure environment, implement enabling infrastructure and initiatives to leverage data transfer and consolidation at central nodes in a uniform, secure, and affordable manner that reduces costs and increase energy security across installations.

3. **Evaluate opportunities to improve project economics** for energy projects through distributed generation, Combined Heat and Power (CHP), and microgrids such as:

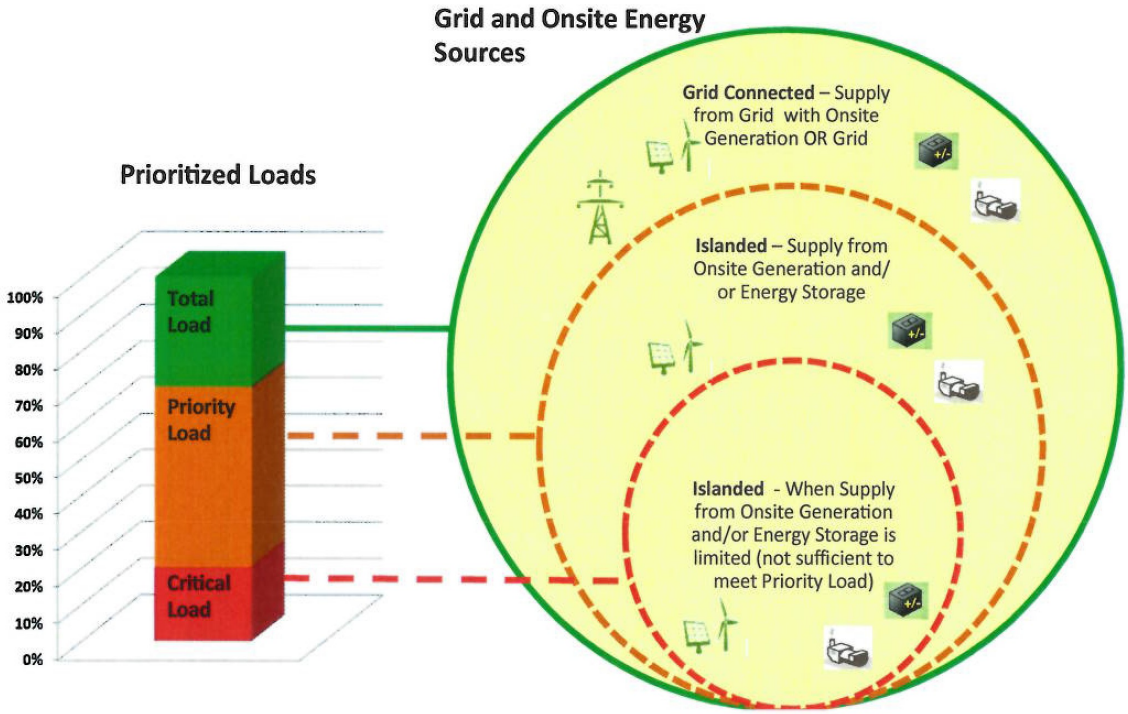
a. Improved energy efficiency through waste heat recovery and utilization.

b. Combined peak shaving with other installations served by the same utility or grid operator.

c. Provide the ability to operate in parallel with the commercial utility grid in order to reduce power imports or export power to other segments of the microgrid.

d. Participate in utility demand response programs and ancillary services markets if available.

Appendix A - Illustrations of Microgrid Design and Function



Appendix B - SECNAV Award Grading Criteria

Table 4 - SECNAV Awards Criteria

SECNAV Energy & Water Management Award Criteria

Objectively Graded Sections

Template Section	BLUE	GOLD	PLATINUM
3.2.2 New Technology and Non-Traditional initiatives	One initiative investigated	At least three initiatives investigated	At least three initiatives investigated and at least one executed if reported DUERS cost is > $500K
3.3.1 Federal Building Design & Construction[1,2]	1-49% of the buildings with BOD in FY15 are built to LEED Silver or above	50-99% of buildings with BOD in FY15 are built to LEED Silver or above	100% of buildings with BOD in FY15 are built to LEED Silver or above
3.3.2 Design & Review[1]	SOP does not include review of designs by the energy manager or regional energy manager specifically for energy concerns	--	SOP includes review of designs by the energy manager or regional energy manager specifically for energy concerns
4.1.a Command Policy	--	Signed and dated energy instruction	Signed energy instruction dated within 7 years
4.1.c Energy Conservation Board/Management Team and Participation	Met once per reporting period and PWO or equivalent must attend	Met at least twice per reporting period and PWO or equivalent must attend	Met at least twice per reporting period and CO/XO or equivalent must attend
4.2 Energy Management Personnel	Energy manager duties designated in writing	Energy manager duties designated in writing, and total % staff time > DUERS cost / 130K	Energy manager duties designated in writing, and total % time > DUERS cost / 70K
4.3.b CECOS Energy Manager's Course Attendance	Current energy manager has attended unless s/he has been in position less than 2 years	--	Current energy manager has attended unless s/he has been in position less than 1 year
4.3.c Energy Management Personnel Training	3 hours in past 5 yrs per $1M annual cost reported in DUERS, or 24 hours in 5 years, whichever is greater	8 hours in past 5 yrs per $1M annual cost reported in DUERS, or 40 hours in 5 years, whichever is greater	17 hours in past 5 yrs per $1M annual cost reported in DUERS, or 60 hours in 5 years, whichever is greater
4.3.e&f Energy Training for Other Personnel	Design/design review personnel have not received energy training and O&M personnel have not received energy training	--	Design/design review personnel have received energy training and O&M personnel have received energy training

Weighted Sections

	POINTS 1	2	3	4	5	6	7
2.1.1 Energy Performance Trend for Goal Facilities [Relative to Recent Performance]	Base = Average MBTU/KSF for reporting year minus 3 (FY-3) and minus 4 (FY-4). Add together points from 4 parts						
	Part 1. % improvement from base to reporting year. 4 points for 15% or more, 3 points for 9% to 15%, 2 points for 6% to 9%, 1 point for any improvement up to 6%						
	Part 2. % improvement reporting year minus 1 to reporting year. 1 point for 3% or more						
	Part 3. % improvement from reporting year minus 2 to reporting year minus 1. 1 point for 3% or more						
	Part 4. % improvement from base to reporting year minus 2. 1 point for 3% or more						
2.1.1 Energy Performance Trend for Goal Facilities [Relative to Baseline]		Any improvement from baseline	2015 goal met (-30%)				
2.1.6 Potable Water Performance Trend [Relative to Baseline]	Any improvement from baseline	Interim goal met (-16%)	2020 goal met (-26%)				
3.1.1&2 Projects Awarded[3,4]	0.005<X<=0.01	0.01<X<=0.04	0.04<X<=0.07	0.07<X<=0.1	0.1<X<=0.13	0.13<X	
3.1.4 Renewable Energy Projects in Operation	Additional generation/savings in reporting year >= 5% of DUERS MBTU	Additional generation/savings in reporting year >=1% of DUERS MBTU	Additional generation/savings in reporting year >=2.5% of DUERS MBTU				
3.1.5 Activity Funded Initiatives Executed[3]	0.0025<X<=0.0125	0.0125<X<=0.0225	0.0225<X				
3.1.8 Projects Planned[3,4]	0.01<X<=0.03	0.03<X<=0.05	0.05<X				
3.2.1 Energy and Water Surveys	Evaluated square footage > 0						
4.4 Building Energy Monitors	BEMs have been designated for each building, met once, and 20% are trained in duties	BEMs have been designated for each building, met twice, and 50% are trained in duties	BEMs have been designated for each building, met three times, 90% are trained in duties, and area specific check lists are used				
4.5 Energy Awareness Program	Distributes DON and/or DOE-provided materials	Distributes DON and/or DOE-provided materials and has significant measures incorporated into energy awareness program		Distributes DON and/or DOE-provided materials and has frequently used significant measures incorporated into energy awareness program			
4.6.a Basic Energy Management Practices	1 point for each checked item in 50% column, 2 points for each checked item in 95% column, divide						
4.6.b&c Water Management Plan & Implemented Best Practices	Has a water management plan and has fully implemented up to 3 best water management practices	Has a water management plan and has fully implemented 4 best water management practices					
4.7 Ordering Energy Efficient Products & Services	#4 or #5 checked	#1 through #5 checked					
4.8 Alternative Fuel Vehicles Goals	Met EISA 2007 goal of 20% petroleum reduction relative to FY05 baseline	Met SECNAV goal of 50% petroleum reduction relative to FY09 baseline					

[1] Explanation for "no" or "N/A" in section 5.2 may waive this requirement
[2] Waived if no buildings had BOD in FY15
[3] X = [(total cost savings)/(annual energy cost)]
[4] REPO projects will not be scored

Message

From: Paine, Fred [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FRED.PAINE]
Sent: 3/14/2018 7:29:47 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: REVISED: NAVY CHP Notification second draft brief

Got it

From: Dunham, Jeffrey B.
Sent: Wednesday, March 14, 2018 3:27 PM
To: Paine, Fred
Subject: RE: REVISED: NAVY CHP Notification second draft brief

Its kinda both but more Raquel and I do not know the risk guy which is why I left him off that e mail requesting Johns help

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
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Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Paine, Fred
Sent: Wednesday, March 14, 2018 3:26 PM
To: Dunham, Jeffrey B.
Subject: RE: REVISED: NAVY CHP Notification second draft brief

Jeff is it Requel or Tamela ? Also might copy that risk guy……..

From: Dunham, Jeffrey B.
Sent: Wednesday, March 14, 2018 3:21 PM
To: Isberg, John F.
Cc: Paine, Fred; Moreira, David; Ferris, Gerald Jr; Henschel, Rachel
Subject: RE: REVISED: NAVY CHP Notification second draft brief
Importance: High

John

Could maybe use a nudge from you to Raquel (in legal) to keep this moving along…see e mail below regarding Raquel's workload. We really need to get this out the door within the next few weeks or so.

Just to bring you up to speed here is what has transpired
I sent the original offer letter and incentive paperwork to the Navy at the end of January as planned

The Navy will not sign the paperwork because there is a claw back for the $7 million incentive should the CHP unit stop operating within 10 years
The Navy is not providing any capital for the project the vendor is funding it as payment in kind for the solar land lease
Since the Navy is not providing any capital they do not want to be on the hook for the claw back
Here is the rub….
The Navy has requested that NGrid direct all the paperwork and the claw back liability to the vendor (BQ) (NGrid has never done this before)
Since the vendor is not the NGrid customer we are going to ask for a surety bond or letter of credit for the claw back
The vendor seems OK with this and is pursuing on their end
The vendor has received verbally approval by the Navy and is now in the process of providing the vendor with all the signed contracts (time frame about 30 days)

As always thanks for your support

Jeff

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From: Bailey, Tamela
Sent: Wednesday, March 14, 2018 2:03 PM
To: Henschel, Rachel; Dunham, Jeffrey B.
Cc: Ferris, Gerald Jr; Kiernan, Timothy P.; Paine, Fred; Webster, Raquel
Subject: REVISED: NAVY CHP Notification second draft brief
Importance: High

Hi:

I hope this email finds everyone well and safe.

[redacted]

Tamela E. Bailey
Senior Counsel, Commercial Legal
National Grid
40 Sylvan Rd.
Waltham, MA 02451-1120
P: (781) 907-1890
Tamela.Bailey@nationalgrid.com
Please consider the environment before printing this e-mail.

From: Henschel, Rachel
Sent: Wednesday, March 14, 2018 1:54 PM
To: Dunham, Jeffrey B.
Cc: Ferris, Gerald Jr; Bailey, Tamela; Kiernan, Timothy P.; Paine, Fred; Webster, Raquel
Subject: RE: NAVY CHP Notification second draft brief

Jeff, Thanks for outlining the next steps – very helpful.

All -- I've added Raquel to this email chain and attached the latest version of the PUC notification letter (which incorporates the changes you, Jed, and I have discussed). This letter has been modified to reflect the next steps you outlined below.

Based on this, I would like the PUC notification letter to go to the Commission immediately following the revised offer letter. Let's stay in close coordination to get the exact date.

[redacted]

The PUC has 30 days to respond to this notification – I've asked for them to shorten that time frame as it's critical to the Navy. For Toray CHP, the Commission held a technical session. I've offered them suggestions of what they can request for a quicker review than holding a technical session. I would like to accomplish PUC review (or non-review – up to them) as soon as possible.

--Rachel

<< File: NAVY CHP Notification third draft.docx >>

From: Dunham, Jeffrey B.
Sent: Wednesday, March 14, 2018 8:01 AM
To: Henschel, Rachel
Cc: Ferris, Gerald Jr; Bailey, Tamela; Kiernan, Timothy P.; Paine, Fred
Subject: RE: NAVY CHP Notification second draft brief

Morning

Rachel
Yes the offer letter will be modified with some additional safeguards (surety bond or letter of credit reference) also will have BQ as the recipient

MRD should not change at all unless there is a reference to the Navy that will be changed to BQ

[redacted]

Offer letter will have whatever date I can send it out to BQ

[redacted]

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From: Henschel, Rachel
Sent: Tuesday, March 13, 2018 9:05 PM
To: Dunham, Jeffrey B.
Cc: Ferris, Gerald Jr
Subject: RE: NAVY CHP Notification second draft brief

Jeff,

Do you anticipate updating the offer letter or MRD based on the deal that Tamela is crafting? If so, when will that be accomplished? What date will be on that offer letter?

I'm trying to think through the best time to send in this notification to the PUC – I'd prefer to do it when a revised offer letter is done with a more current date. And if the offer letter is being revised – please put in one sentence that says National Grid is notifying the PUC of the offer.

I revised based on Jed's comments. Will send to Tamela and Raquel once I hear back from ya'll – I'd prefer to figure this out and then know what to ask for their help on.

-Rachel

From: Dunham, Jeffrey B.
Sent: Monday, March 12, 2018 6:41 PM
To: Henschel, Rachel
Cc: Ferris, Gerald Jr
Subject: RE: NAVY CHP Notification second draft brief

Rachel
The e mail below was meant for you not Jed

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
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280 Melrose St.
Providence, RI 02907
401-784-7638 Office
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From: Dunham, Jeffrey B.
Sent: Monday, March 12, 2018 5:59 PM
To: Ferris, Gerald Jr
Cc: Henschel, Rachel
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Jed
Regarding your last comment in the attachment
No one has requested confidentiality however the question has never been asked
I would leave it unless you feel it necessary to ask the Navy

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To: Henschel, Rachel

Cc: Dunham, Jeffrey B.
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Here are my markups and comments.

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 3/27/2018 5:03:01 PM
To: Bailey, Tamela [tamela.bailey@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: Re: NAVY CHP Notification second draft brief

[redacted]

On Mar 27, 2018, at 11:38 AM, Bailey, Tamela <Tamela.Bailey@nationalgrid.com> wrote:

[redacted]

Tamela E. Bailey
Senior Counsel, Commercial Legal
National Grid
40 Sylvan Rd.
Waltham, MA 02451-1120
P: (781) 907-1890
Tamela.Bailey@nationalgrid.com
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Can you place that in the most appropriate section of the agreement letter
thanks

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From: Henschel, Rachel
Sent: Monday, March 26, 2018 3:28 PM
To: Dunham, Jeffrey B.

Cc: Hermanowski, Jessica
Subject: FW: NAVY CHP Notification second draft brief

Jeff,

Please see language below highlighted in yellow – can you make sure that gets into revised offer letter for BQ?

From: Henschel, Rachel
Sent: Wednesday, March 14, 2018 12:43 PM
To: Ferris, Gerald Jr; Dunham, Jeffrey B.
Subject: RE: NAVY CHP Notification second draft brief

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National Grid will notify the RI Public Utility Commission. The project, the incentive, and any other related proposals will be authorized to proceed after thirty days from the notice filing unless the PUC suspends the filing and/or issues an order within such 30-day period to extend the time for purposes of further review.

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To: Dunham, Jeffrey B.
Cc: Henschel, Rachel
Subject: RE: NAVY CHP Notification second draft brief

Make sure we add the language that PUC will be notified as specified by Rachel below.

"Put in one sentence that says National Grid is notifying the PUC of the offer"

Gerald (*Jed*) Ferris

NE CHP Project Manager
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280 Melrose Street
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Sent: 3/28/2018 4:58:27 PM
To: debra.kemp@navy.mil; john.breckner@navy.mil
CC: beth.pascual@navy.mil; Paine, Fred [fred.paine@nationalgrid.com]
Subject: Navy CHP language for memo

Afternoon

As we discussed on this past Monday's call, NGrid will require some sort of memo from the Navy authorizing BQ to be able to install equipment on Navy property and receive Ngrid incentives associated through the Navy's electric account.

Feel free to modify the wording

The US Navy is aware and has approved a CHP unit will be installed and owned by BQ at Naval Station Newport . The Navy approves all the incentive documentation including incentive application and agreement/approval letter to be directed to BQ . The Navy authorizes BQ to be able to sign the incentive documentation that is associated with the electric account currently in the name of the Navy.

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From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 3/28/2018 2:52:21 PM
To: Bailey, Tamela [tamela.bailey@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: NAVY CHP Notification second draft brief

Yes that is correct

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Bailey, Tamela
Sent: Tuesday, March 27, 2018 2:15 PM
To: Henschel, Rachel; Dunham, Jeffrey B.
Subject: RE: NAVY CHP Notification second draft brief

To clarify and make sure we are on the same page, we are asking BQ to provide some kind of security which is why Jeff spoke with Tim Kiernan about a surety bond or letter of credit. Correct? Tim Kiernan consulted with NG's broker who suggested a performance guarantee bond as indicated in Tim Kiernan's email yesterday. You asked me to modify the Offer Letter and include the necessary commercial legal terms. I am not a security expert. Any language regarding the security we are requiring will need to come from James Koes or Tim Kiernan.

Tamela E. Bailey
Senior Counsel, Commercial Legal
National Grid
40 Sylvan Rd.
Waltham, MA 02451-1120
P: (781) 907-1890
Tamela.Bailey@nationalgrid.com
Please consider the environment before printing this e-mail.

From: Henschel, Rachel
Sent: Tuesday, March 27, 2018 1:56 PM
To: Bailey, Tamela; Dunham, Jeffrey B.
Subject: RE: NAVY CHP Notification second draft brief

Tamela,

I am in meetings at 11 and 4. However, you all can meet without me.

Rachel

From: Bailey, Tamela
Sent: Tuesday, March 27, 2018 1:07 PM
To: Dunham, Jeffrey B.; Henschel, Rachel
Subject: RE: NAVY CHP Notification second draft brief

[redacted] I set a meeting up for tomorrow at 4pm but that is so late that I am hoping we can meeting earlier in the day. Can you and Rachel talk at 11am?

Tamela E. Bailey
Senior Counsel, Commercial Legal
National Grid
40 Sylvan Rd.
Waltham, MA 02451-1120
P: (781) 907-1890
Tamela.Bailey@nationalgrid.com
Please consider the environment before printing this e-mail.

From: Dunham, Jeffrey B.
Sent: Tuesday, March 27, 2018 1:03 PM
To: Bailey, Tamela; Henschel, Rachel
Subject: Re: NAVY CHP Notification second draft brief

Tamela
[redacted]

Rachel
Is the notification triggered at 3 million ?

On Mar 27, 2018, at 11:38 AM, Bailey, Tamela <Tamela.Bailey@nationalgrid.com> wrote:

[redacted]

Tamela E. Bailey
Senior Counsel, Commercial Legal
National Grid
40 Sylvan Rd.
Waltham, MA 02451-1120
P: (781) 907-1890
Tamela.Bailey@nationalgrid.com
Please consider the environment before printing this e-mail.

From: Dunham, Jeffrey B.
Sent: Tuesday, March 27, 2018 8:03 AM
To: Bailey, Tamela
Subject: FW: NAVY CHP Notification second draft brief

[redacted]

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Henschel, Rachel
Sent: Monday, March 26, 2018 3:28 PM
To: Dunham, Jeffrey B.
Cc: Hermanowski, Jessica
Subject: FW: NAVY CHP Notification second draft brief

Jeff,

Please see language below highlighted in yellow – can you make sure that gets into revised offer letter for BQ?

From: Henschel, Rachel
Sent: Wednesday, March 14, 2018 12:43 PM
To: Ferris, Gerald Jr; Dunham, Jeffrey B.
Subject: RE: NAVY CHP Notification second draft brief

Jeff & Jed,

This sounds great. Glad there will be a new offer letter, more recent date, and here's the sentence to put in there:

National Grid will notify the RI Public Utility Commission. The project, the incentive, and any other related proposals will be authorized to proceed after thirty days from the notice filing unless the PUC suspends the filing and/or issues an order within such 30-day period to extend the time for purposes of further review.

To be clear – the PUC isn't supposed to rule or reject this – that's what "notify" means. It means they get to learn more about it. We will make that very clear to the Commission. What we may need is a rep from the Navy to show up to a technical session on it, if the PUC decides to have one. If the PUC does hold a tech session, then we'll meet internally to discuss how best to answer questions and who will go to the tech session (plan on coming, please). I'll also pull in Mark Sevier. I'm thinking it'll be more realistic that they issue record requests only and not a tech session. I'll add a sentence to the draft that this needs to move fast as important business decisions need to continue.

For next step, I'm sending revised letter to Tamela and Raquel and communicating what Jeff said below regarding timeline.

From: Ferris, Gerald Jr
Sent: Wednesday, March 14, 2018 8:07 AM
To: Dunham, Jeffrey B.
Cc: Henschel, Rachel
Subject: RE: NAVY CHP Notification second draft brief

Make sure we add the language that PUC will be notified as specified by Rachel below.

"Put in one sentence that says National Grid is notifying the PUC of the offer"

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Wednesday, March 14, 2018 8:01 AM
To: Henschel, Rachel
Cc: Ferris, Gerald Jr; Bailey, Tamela; Kiernan, Timothy P.; Paine, Fred
Subject: RE: NAVY CHP Notification second draft brief

Morning

Rachel
Yes the offer letter will be modified with some additional safeguards (surety bond or letter of credit reference) also will have BQ as the recipient

MRD should not change at all unless there is a reference to the Navy that will be changed to BQ

[redacted]

Offer letter will have whatever date I can send it out to BQ

[redacted]

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907

401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Henschel, Rachel
Sent: Tuesday, March 13, 2018 9:05 PM
To: Dunham, Jeffrey B.
Cc: Ferris, Gerald Jr
Subject: RE: NAVY CHP Notification second draft brief

Jeff,

Do you anticipate updating the offer letter or MRD based on the deal that Tamela is crafting? If so, when will that be accomplished? What date will be on that offer letter?

I'm trying to think through the best time to send in this notification to the PUC – I'd prefer to do it when a revised offer letter is done with a more current date. And if the offer letter is being revised – please put in one sentence that says National Grid is notifying the PUC of the offer.

I revised based on Jed's comments. Will send to Tamela and Raquel once I hear back from ya'll – I'd prefer to figure this out and then know what to ask for their help on.

-Rachel

From: Dunham, Jeffrey B.
Sent: Monday, March 12, 2018 6:41 PM
To: Henschel, Rachel
Cc: Ferris, Gerald Jr
Subject: RE: NAVY CHP Notification second draft brief

Rachel
The e mail below was meant for you not Jed

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dunham, Jeffrey B.
Sent: Monday, March 12, 2018 5:59 PM
To: Ferris, Gerald Jr
Cc: Henschel, Rachel
Subject: RE: NAVY CHP Notification second draft brief

Jed
Regarding your last comment in the attachment
No one has requested confidentiality however the question has never been asked
I would leave it unless you feel it necessary to ask the Navy

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Monday, March 12, 2018 1:41 PM
To: Henschel, Rachel
Cc: Dunham, Jeffrey B.
Subject: NAVY CHP Notification second draft brief

<< File: NAVY CHP Notification second draft brief.docx >>
Here are my markups and comments.

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 3/29/2018 10:48:10 AM
To: Isberg, John F. [john.isberg@nationalgrid.com]
Subject: Re: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status

John
I appreciate all your support with this program and others you had helped me with in the past
If we close this one we can have Tom take us out for lunch lol

On Mar 28, 2018, at 7:40 PM, Isberg, John F. <John.Isberg@nationalgrid.com> wrote:

> This should help. Thanks for your time today.
>
> Sent from my iPad
>
> Begin forwarded message:
>
> **From:** "Bailey, Tamela" <Tamela.Bailey@nationalgrid.com>
> **Date:** March 28, 2018 at 4:38:35 PM EDT
> **To:** "Isberg, John F." <John.Isberg@nationalgrid.com>, "Ryan, Michael" <Michael.Ryan@nationalgrid.com>
> **Cc:** "Moreira, David" <David.Moreira@nationalgrid.com>, "Paine, Fred" <Fred.Paine@nationalgrid.com>, "Henschel, Rachel" <Rachel.Henschel@nationalgrid.com>, "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
> **Subject: RE: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status**
>
> Hi John:

Tamela E. Bailey
Senior Counsel, Commercial Legal
National Grid
40 Sylvan Rd.
Waltham, MA 02451-1120
P: (781) 907-1890
Tamela.Bailey@nationalgrid.com
Please consider the environment before printing this e-mail.

From: Isberg, John F.
Sent: Wednesday, March 28, 2018 3:27 PM
To: Ryan, Michael
Cc: Moreira, David; Paine, Fred; Bailey, Tamela; Henschel, Rachel; Dunham, Jeffrey B.

Subject: Re: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status

Mike,
I spoke with Chris Kearns and he said you had interest in this project. We are hoping to wrap it up soon and when we do we will reach out to you to plan something with our Senators. Although it is never done until the ink drys!
John

Sent from my iPad

On Mar 26, 2018, at 9:22 AM, Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com> wrote:

> Morning John
>
> **To recap**
> I sent the original offer letter and incentive paperwork to the Navy at the end of January as planned
> The Navy will not sign the paperwork because there is a claw back for the $7 million incentive should the CHP unit stop operating within 10 years
> The Navy is not providing any capital for the project the vendor is funding it as payment in kind for the solar land lease
> Since the Navy is not providing any capital they do not want to be on the hook for the claw back
> Here is the rub….
> The Navy has requested that NGrid direct all the paperwork and the claw back liability to the vendor (BQ) (NGrid has never done this before)
> Since the vendor is not the NGrid customer we are going to ask for a surety bond or letter of credit for the claw back
> The vendor seems OK with this and is pursuing on their end
> The vendor has received verbally approval by the Navy and is now in the process of providing the vendor with all the signed contracts (time frame about 30 days)
>
> **Update as of this morning**
> -NGrid is moving forward with directing all of the paperwork to BQ (the vendor)
> -Tim Kiernan from Finance Risk has provided me with the surety bond language to provide to BQ , which I have done
> -NGrid incentive agreement is with Tamela for revisions. I received an e mail from her last Thursday that it is next on her to do list
> -Rachel has the PUC notification ready and is just waiting for the incentive agreement letter to be completed before sending it out to the PUC.
> - Call at 1PM today with the Navy and BQ, hoping to get something from Tamela prior to the call.
>
> Jeffrey Dunham
> Certified Energy Manager
> LEED Accredited Professional (AP)
> National Grid

280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Isberg, John F.
Sent: Monday, March 26, 2018 8:38 AM
To: Paine, Fred; Dunham, Jeffrey B.; Moreira, David
Subject: Fwd: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status

Anything new I can say to Chris?

Sent from my iPhone

Begin forwarded message:

> **From:** "Kearns, Christopher (DOA)" <Christopher.Kearns@energy.ri.gov>
> **Date:** March 26, 2018 at 8:31:05 AM EDT
> **To:** "Isberg, John F." <John.Isberg@nationalgrid.com>
> **Subject: RE: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status**
>
> Hi John,
>
> Hope all is well. Anything new with the Navy CHP project?
>
> Thanks,
>
> Chris
>
> ---
>
> **From:** Isberg, John F. [mailto:John.Isberg@nationalgrid.com]
> **Sent:** Wednesday, February 14, 2018 5:41 PM
> **To:** Kearns, Christopher (DOA) <Christopher.Kearns@energy.ri.gov>
> **Subject:** Re: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status
>
> Yes they have there offer letter as of 2/1 as promised
>
> Sent from my iPhone
>
> On Feb 14, 2018, at 5:31 PM, Kearns, Christopher (DOA) <Christopher.Kearns@energy.ri.gov> wrote:
>
> > Hi John,
> >
> > Anything new on Navy project?

Thanks,

Chris

-----Original Appointment-----
From: Isberg, John F. [mailto:John.Isberg@nationalgrid.com]
Sent: Friday, January 12, 2018 11:37 AM
To: Kearns, Christopher (DOA)
Subject: [EXTERNAL] : Accepted: EXT || Catching Up with Chris - Newport/CHP Project Status
When: Friday, January 12, 2018 3:30 PM-3:40 PM (UTC-05:00) Eastern Time (US & Canada).
Where:

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https://www.nationalgrid.com/group/about-us/corporate-registrations

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For the registered information on the UK operating companies within the National Grid group please use the attached link:
https://www.nationalgrid.com/group/about-us/corporate-registrations

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 4/12/2018 3:17:14 PM
To: Ferris, Gerald Jr [gerald.ferrise@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: FW: Navy CHP Project

Gas infrastructure required for the Navy CHP
See below

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dion, Thomas
Sent: Thursday, April 12, 2018 11:16 AM
To: Dunham, Jeffrey B.
Subject: Navy CHP Project

Jeff,

BF 3/31/2017
Gas Operations Engineering approves the proposed load of 126,000 CFH contingent upon:
1) Growth Reinforcement: Due to the integrity of the 99psig, 35psig, and LP systems in the surrounding locations of this request, the installation of approx. 3,000 ft of 12 in WS 99psig main on Green End Avenue in Middletown RI will be an adequate reinforcement keep all pressures above system minimum and allow the customer to achieve its desired gas capacity request.
2) Growth Reinforcement: There is a 12 in WS 99psig stub on the intersection of Green End Ave @ Compton View Dr which will be extended with 12 in WS 99psig approx. 3,000 ft parallel with the existing 8 in WS 99psig on Green End Ave to the 12 in WS 99psig stub on the corner of Green End Ave and Aquidneck Ave.
3) After this reinforcement is complete, the installation of up to 100 ft of 8 in WS 99psig service off of the existing 12 in WS 99psig main will be adequate to serve the Boiler Plant.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 4/15/2018 1:29:28 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: FW: Navy CHP - 0 Simonpietri Dr Newport Gas Service
Attachments: 0 Simonpietri Dr Newport (Navy CHP) Gas Letter.pdf; 0 Simonpietri Dr Newport Navy CHP SLA.pdf

Jim
See below and attached
These documents also need to be signed and are for the gas service to the CHP
Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dion, Thomas
Sent: Tuesday, July 25, 2017 2:32 PM
To: jim.falsetti@bqenergy.com
Cc: Dunham, Jeffrey B.; Paine, Fred; Ferris, Gerald Jr
Subject: Navy CHP - 0 Simonpietri Dr Newport Gas Service

Good afternoon Jim,
Enclosed is the agreement for gas service to the proposed CHP unit at Naval Station Newport.
Please sign the enclosed agreement and return email it to me.
I will work with Navy Utilities to secure a Contract Modification for the onsite service work.
Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

nationalgrid

July 25, 2017

James Falsetti
BQ Energy LLC
400 Market Industrial Park Suite 400
Wappingers Falls, NY 12590

Re: Naval Station Newport CHP – Gas Service

Dear Jim,

I am pleased to inform you that your request for installation of natural gas service has been evaluated and provisionally approved for approximately 126 DTH/hour of natural gas as the primary fuel for your CHP project.

Final approval constituting an agreement by National Grid to proceed with the requested installation will require you to complete and return the attached Commercial Gas Service Agreement. Once executed by National Grid, the accepted Agreement shall become the agreement governing the proposed installation.

In order to install a new gas service on Naval Station Newport, the Navy will need to provide a Contract Modification to National Grid. National Grid will work with Navy Utilities to secure the contract mod.

To adequately supply natural gas to this project, it will require installation of approximately;

Service

Installation of 100 feet of new 8" 99 psi gas service from the existing 99 psi main in Simonpietri Drive to an agreed upon location at your new CHP unit.

Reinforcement

Install approximately 3000 feet of 99 psi main in Green End Ave, Middletown.

This project will not require a Contribution in aid of Construction (CIAC).
Please complete and return the signed Application.
Please be advised that the contribution in aid of construction is subject to change at any time.

This agreement is also subject to the following:

1) **All outlet piping after the meter is the sole responsibility of the owner.**
2) **All equipment (if needed) must be properly regulated to operate correctly and safely at the above stated delivery pressure.**
3) **All equipment must be installed according to any national, state or local codes.**
4) **Approval is contingent upon being able to obtain any needed state or local permits by National Grid.**
5) **Price does not include any occurrences causing a delay in installation**
6) **Final meter location must have a minimum 3 foot clearance on all sides from operable windows, doors, vents and sources of ignition (electrical)**
7) **Normal meter configuration from the riser is left to right.**

8) **In the event that a concrete pad is required for the meter installation, said pad must be poured per National Grid Specifications by the customer at their expense.**

Please be advised that all projects are assigned an estimated target date only after the needed permits are received and the project has been dig-safed.

Please email a signed copy of the enclosed agreement to my attention at

Thomas Dion
thomas.dion@nationalgrid.com
National Grid
280 Melrose St
Providence RI 02907

Please be sure that the service line agreement is completed in full (all "yellow" areas) including your signature.

Your application will be processed upon receipt of the contract. If the enclosed application is not signed and received within three (3) months from the date of this letter, this provisional approval and the contribution amount will have to be reconsidered.

Once your contract and payment have been processed further information regarding service line or meter install can be obtained from Mario Carlino Project Manager. He can be reached at 401-784-7028.

Average lead time for service installations is 12 weeks after the receipt of the CIAC and signed service line installation agreement. All installations are subject to weather conditions, work loads and the ability to procure a road opening permit from the town, city or state, whichever is applicable.

Special Conditions

1) **Please be advised that our gas capacity in this area is not capable of supporting the requested load additions. Gas meter(s) cannot be activated until the reinforcement is complete.**

We cannot accept the meter application order for service activation until the natural gas service pipe and equipment installations are completed, including the outlet piping tied into the meter that will installed in the off and locked position or the applicable header bar(s), whichever is applicable. Meter activation application, when ready, can be made by calling our contact center at 1-800-870-1664.

If I can be of further assistance, please contact me direct at (401) 784-7153.

Sincerely,

Thomas Dion

Enclosure(s)/attachments

Rhode Island

Commercial Gas Service/Main Agreement - 2017

nationalgrid

Contact Information

Business Name:	BQ Energy LLC
Premise Address:	0 Simonpietri Dr
City, State, Zip:	Newport, RI 02840
Business Phone:	203-512-7446
Fax Number:	
Mailing/Billing:	400 Market Industrial Park Suite 32
City, State, Zip:	Wappinggers Falls, NY 12590
Contact Name:	James Falsetti
Contact Phone:	203-512-7446
Contact Email:	jim.falsetti@bqenergy.com
Contractor Name:	
Contractor Phone:	
Contractor Email:	

CHECK ALL THAT APPLY

Surrounding Area Description:

☐ Wetlands/Water ☐ Historic ☐ Nature Preserve
☐ Undeveloped ☐ Urban ☐ N/A

Site Information: (on private property along service route)

☐ Sprinkler ☐ Septic ☐ Trees ☐ Ledge/Rock
☐ Side Walk ☐ Drive Way ☐ Parking Lot

Underground Utilities:

☐ Electric ☐ Phone ☐ Cable ☐ Underground Oil Tank

Customer Installation Expectations:

Planned Natural Gas Equipment Installation Date: _____
Requested Service-Main Installation Date: _____
Estimated Meter Turn on Date: _____

This agreement is subject to the **Terms and Conditions on the back of this agreement**. The Narragansett Electric Company d/b/a National Grid (National Grid) agrees to install a gas service to the above location (Premises). I understand that I may cancel this agreement, without obligation, at anytime prior to the installation of the gas service line. I hereby authorize National Grid to install a natural gas service line to the address noted above.

PAYMENT INFORMATION: Please do not send payment along with this contract. An invoice will be generated upon receipt of this application with the option to pay by check. Please note: all invoices must be paid within sixty days.

Customer Contribution Towards Construction Cost:* $ 0.00 **Customer to dig & provide backfill (EBBO) Yes** ☐ **No** ☐

*Customer quote is valid for 90 days from the date of the "National Grid Rep Signature" below. After 90 days, this amount is no longer valid and is subject to change.

Owner/Applicant Signature: _____ **Date:** _____

National Grid Rep Signature: _____ **Date:** _____

National Grid Use Only: **Public Bldg:** Yes ☐ No ☐

Trench Paving: Yes ☐ No ☐ Estimated Length 3100'

Number of Services: 1 Average Service Length 100'

Total Estimated Length: Service 100' Main 3000'

Intersecting Street: Naval Station Newport/Simonpietri Dr (Boiler Plant)

Suite or Unit #	Rate	CFH	ADTH	Meter Size	Delivery Pressure	Margin
CHP	24EN	126,000	533731		Line Pressure	720354
	TOTAL					

Target Date: Summer 2018 **Onyx Cust. ID#:** _____

Work Order: Service _____ **Main** _____

Easement Required: Yes ☐ No ☐

Permits: ☐ Town ☐ State ☐ Conservation ☐ Private Way

Existing Service Information (if applicable)

Acct. #: _____ / _____ **Rate:** _____

CFH: _____ **Service Size:** _____ **Meter Size:** _____

Sales Type:
☐ New Construction
☐ Rehab
☐ Added Load
☐ Off-1-Year
☐ Rate Change

Sales Type:
☐ Conversion
☐ Low Use
☐ Oil
☐ Propane
☐ Electricity

Work Required:
☐ Add Meter
☐ Fitting Work
☐ Main/Svc
☐ New Svc
☐ Relay Svc

Multifamily: _____ **#Apts.**
☐ Bldg. Mtr.
☐ House Mtr.
☐ Individual Mtr.
☐ Master Mtr.
☐ Heat
☐ Hot Water
☐ Cooking
☐ Drying
☐ Fireplace

Activity Request:
☐ Eng Analysis
☐ Construction Est.
☐ Sold
☐ Project Managed

_____ LP _____ IP _____ HP Pre-Marked: _____

Naval Station Newport Contract Modification needed for installation of service

Notes: New service 8" PE approx. 100' long. *****Need 3000' of 12" WS 99 psi Growth Reinforcement on Green End Ave Middletown ***** Naval Station Newport to provide "Contract Modification" to install new service on Navy property.

Terms and Conditions of Commercial Gas Service Agreement

1. Applicant agrees to pay National Grid to aid in the construction of the natural gas service line and associated main work required to provide service to the Premises. In the event that the actual service line length exceeds the estimated footage, National Grid may bill the property owner at a rate of (Excess Footage Fee) over the estimated service line length.
2. Once the meter is set, the Applicant becomes the customer of record and National Grid will commence billing the Applicant. The Applicant agrees to pay for gas service pursuant to the applicable rate classification and in accordance with National Grid's Terms and Conditions, as filed from time to time with the Rhode Island Public Utilities Commission.
3. National Grid will take reasonable measures to minimize damage to Applicant's property. National Grid will not be responsible for private property restoration.
4. National Grid will install the necessary natural gas distribution system to the site, subject to weather conditions and all federal, state and local codes and permit requirements.
5. Notwithstanding the foregoing, National Grid may, at any time, terminate this Agreement without any further obligations, in the event of one of the following "Triggering Conditions": (a) it discovers that there is no active natural gas main in close proximity to Applicant's property for which a service connection can be made in a reasonably cost effective manner (b) it discovers conditions (including, without limitation, ledge, steep grades, and retaining walls), that would, in National Grid's judgment, materially increase the cost of installation, or (c) the fees for the required permits are significantly in excess of what is typical for such work (d) National Grid is unable to obtain the necessary permits to install the gas service line. In the event of a Triggering Condition, National Grid shall consider any Applicant proposals for an adjustment of price.
6. National Grid will not be responsible for delays or damages associated with the installation of a gas service line due to weather or the issuance of permits, nor will it be responsible for damages attributable to unforeseen conditions beyond its control.
7. (New Construction Only) Applicant shall construct, or cause the construction of all necessary water lines, sewer lines, roads and electrical lines, and will perform other necessary work required to prepare the site for the installation.
8. Applicant shall provide all easements and rights-of-way necessary for National Grid to install natural gas distribution lines required to provide service to the Premises.
9. National Grid will accept or modify the meter location shown on the front of this form based upon its installation requirements.
10. Applicant assumes full and complete responsibility for any and all costs associated with any environmental contamination encountered by National Grid during the installation, including but not limited to the costs to clean up or remediate such contamination.
11. In the event that environmental contamination is encountered during the installation, all work shall cease and National Grid shall provide oral and written notice to the Applicant within a reasonable time. Thereafter, National Grid shall have no further obligations under this agreement.
12. Applicant shall, to the fullest extent permitted by law, indemnify, hold harmless and release National Grid, its parent company, affiliates and subsidiaries and their respective directors, officers, employees, agents, servants, representatives, successors and assigns from and against all claims, demands, liabilities or expenses related to environmental contamination at or in the vicinity of the Premises. This indemnity and release provision survives the expiration or termination of the Agreement and extends to the respective successors and assigns of National Grid and Applicant.
13. National Grid shall own the natural gas distribution system up to the outlet side of each individual customer meter.
14. All installations where excavating and back filling are to be performed by Applicant or his/her designee will be performed in compliance with National Grid's specifications, and the installation shall not commence until said trench is inspected and accepted by a representative of National Grid.
15. In the event that the gas equipment identified on the front of this agreement is not installed and in use within six months of the date of installation of the service line, the Applicant agrees to pay National Grid for the cost of installing all gas lines necessary to serve Premises, minus any prior contribution in aid of construction made to National Grid.
16. Prior to the start of the work described on the front of this agreement, Applicant is responsible for marking out any underground facilities on their property that are not marked out as a result of National Grid's notification of the Dig Safe system.
17. This Agreement may be modified only by a writing signed by National Grid and Applicant; any verbal representations or modifications by National Grid employees or others shall be null and void.
18. The laws of the State of Rhode Island shall govern this Agreement.
19. If Applicant changes the primary fuel from natural gas to an alternate fuel source during the first five (5) years after billing commences, National Grid reserves the right to reevaluate the financial impact of this change and bill Applicant for a portion of its original investment.
20. If any terms of this Agreement or portions thereof are declared or become invalid or unenforceable, the remainder of this Agreement shall continue in full force and effect.
21. *Customer quote is valid for 90 days from the date of the "National Grid Rep Signature" below. After 90 days, this amount is no longer valid and is subject to change.

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 4/23/2018 1:40:27 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: CHP Overview 1-5-18
Attachments: CHP Overview 1-5-18.pdf

CHP Overview 1-5-18.pdf

NAVAL STATION NEWPORT

690 PEARY STREET
NEWPORT, RI 02841

COMBINED HEAT AND POWER FEASIBILITY ANALYSIS

December 2016

Where Did We Start?

- Obtained Hourly Electrical Data for Naval Station from October 2013 – September 2016
- Obtained 15-Minute Steam Metering Data for 7CC and 27A Boiler Plants from October 2014 – September 2016 and Converted to Hourly Data
- Obtained Chilled Water Production Data from January 2015 – October 2016
- Developed Electrical and Steam Load Duration Curves
- Obtained Hourly Outdoor Air Weather Conditions from October 2014 – October 2016
- Obtained Utility Summary Spreadsheets from Navy Personnel

Where Did We Start?

- Received and Reviewed National Grid Invoices for Electrical Consumption for Main Electrical Meter for Naval Station to Verify Tariff/Rate Structure
- Received and Reviewed Commodity Supplier Invoices to Verify Electrical Commodity Costs
- Received and Reviewed National Grid Invoices for Natural Gas Consumption for Service to 7CC and 27A Boiler Plants to Verify Tariff/Rate Structure
- Utilized Fuel Oil Consumption and Cost Figures Provided in Navy Summary Spreadsheet
- Reviewed Previous CHP Studies and Honeywell Annual Savings Report to Better Understand Previous Energy Project Work Undertaken at the Site

Where Did We Start?

- Met with Navy Personnel to Review Plant Siting Options and to Review Customer Requirements
- Discussed Current Operation of 7CC and 27A Boiler Plants
- Reviewed Trend Data Provided by Honeywell Building 1284 Chiller Plant to Develop Hourly Chilled Water Load Profile
- Reviewed National Grid CHP Guidelines Document
- Data Loaded into Excel Model
  - Hourly Baseline Electrical Load for Site Developed
  - Hourly Baseline Steam Load for 7CC Plant is Developed
  - Hourly Estimates of Chilled Water Loads Available to 27A Plant Location Developed

Where Did We Start?

- Obtained Detailed Performance Data for Several Combustion Gas Turbines and One Reciprocating Engine Including:
  - Solar – Mercury 50 (~4.5 MW) – Gas Turbine
  - Solar – Taurus 70 (~7.5 MW) – Gas Turbine
  - Solar – Mars 100 (~10.0 MW) – Gas Turbine
  - Kawasaki – KG-18V (~7.5 MW) – Reciprocating Engine
- Obtained Performance Data on Proposed Back Pressure Turbine to be Installed by Honeywell at 7CC Boiler Plant – Skinner Power Systems (213 kW Unit)
- Utilized Performance Data from Elliot Turbine Proposal to Navy for Alternate Back Pressure Turbine Scenarios

Where Did We Start?

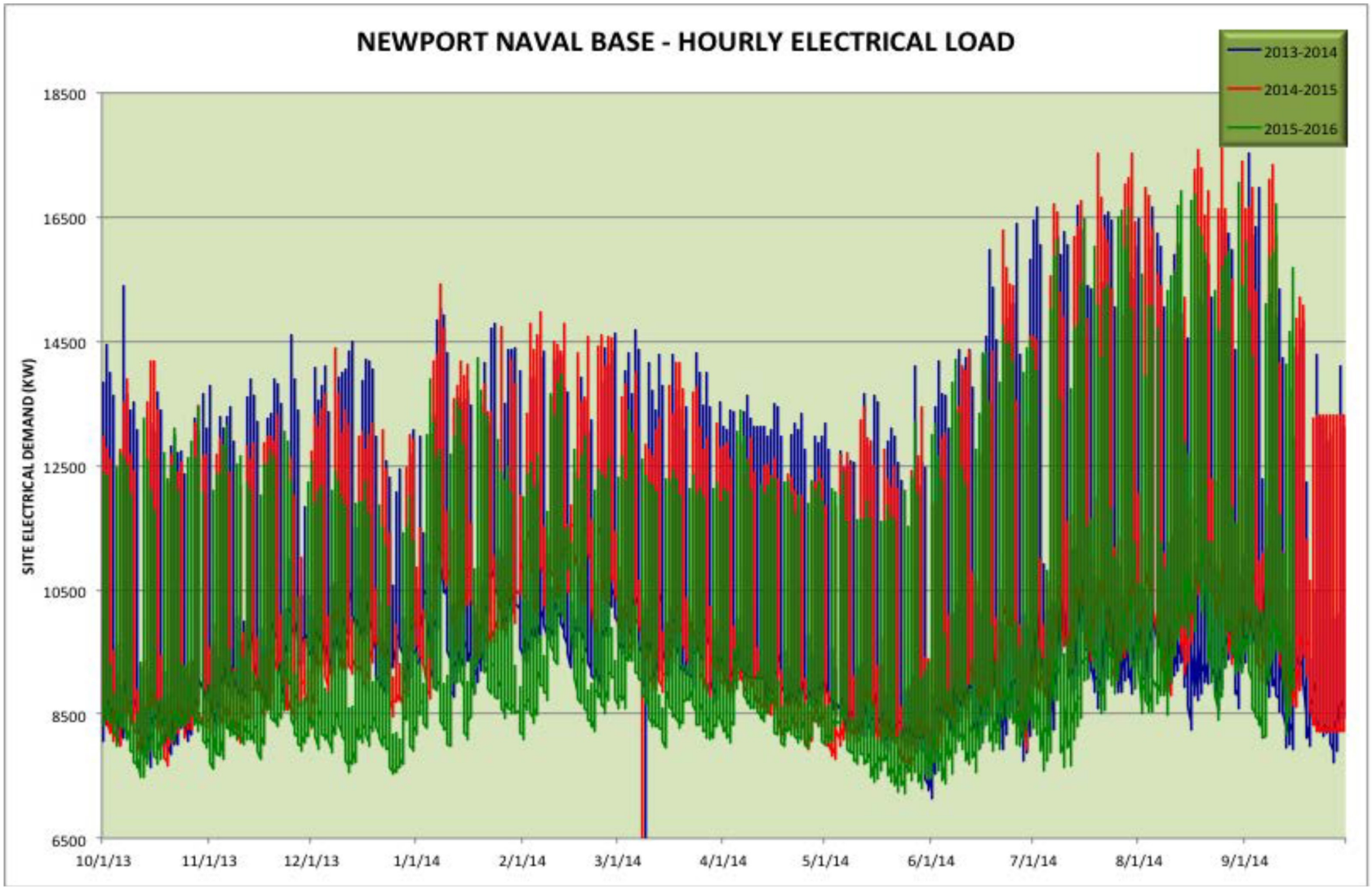
- Utilized Performance from Previous Projects for Condensing Steam Turbine Options
- A 12 Month Time Frame is Selected for Analysis (Currently 1/1/15 – 12/30/15)
- Two Years of Utility Bill Data is Reviewed for Model Sanity Check
- The Model is Run with Steam and Chilled Water Formulas for Estimating Hourly Loads and Output is Compared to Utility Bill Consumption and Other Metered Data
- Adjustments are Made to Formulas if Needed to Calibrate the Model
- Full and Part Load CHP System Data is Entered into CHP Model to Allow for Comparison of System Sizes

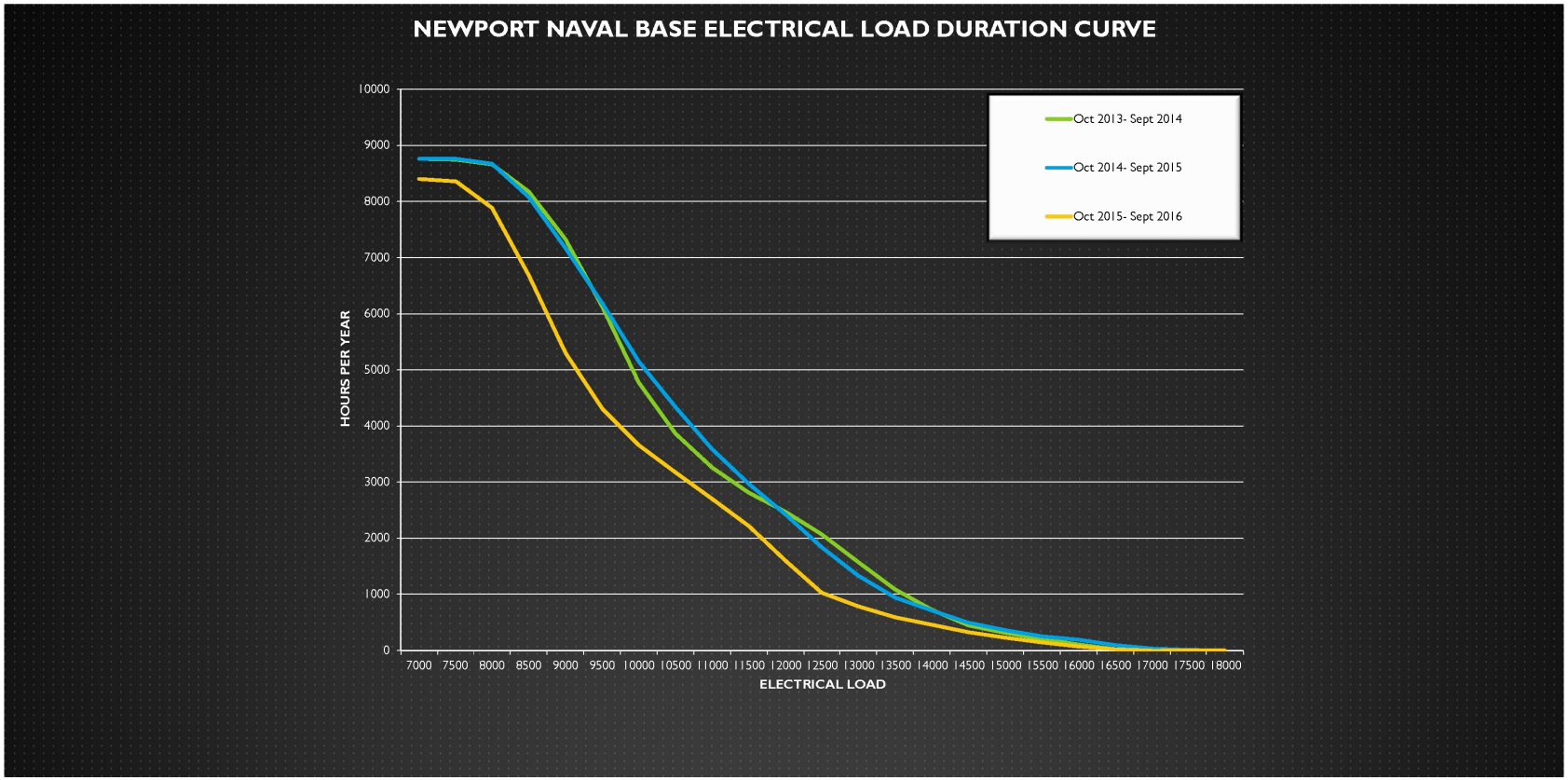
What Happens Next?

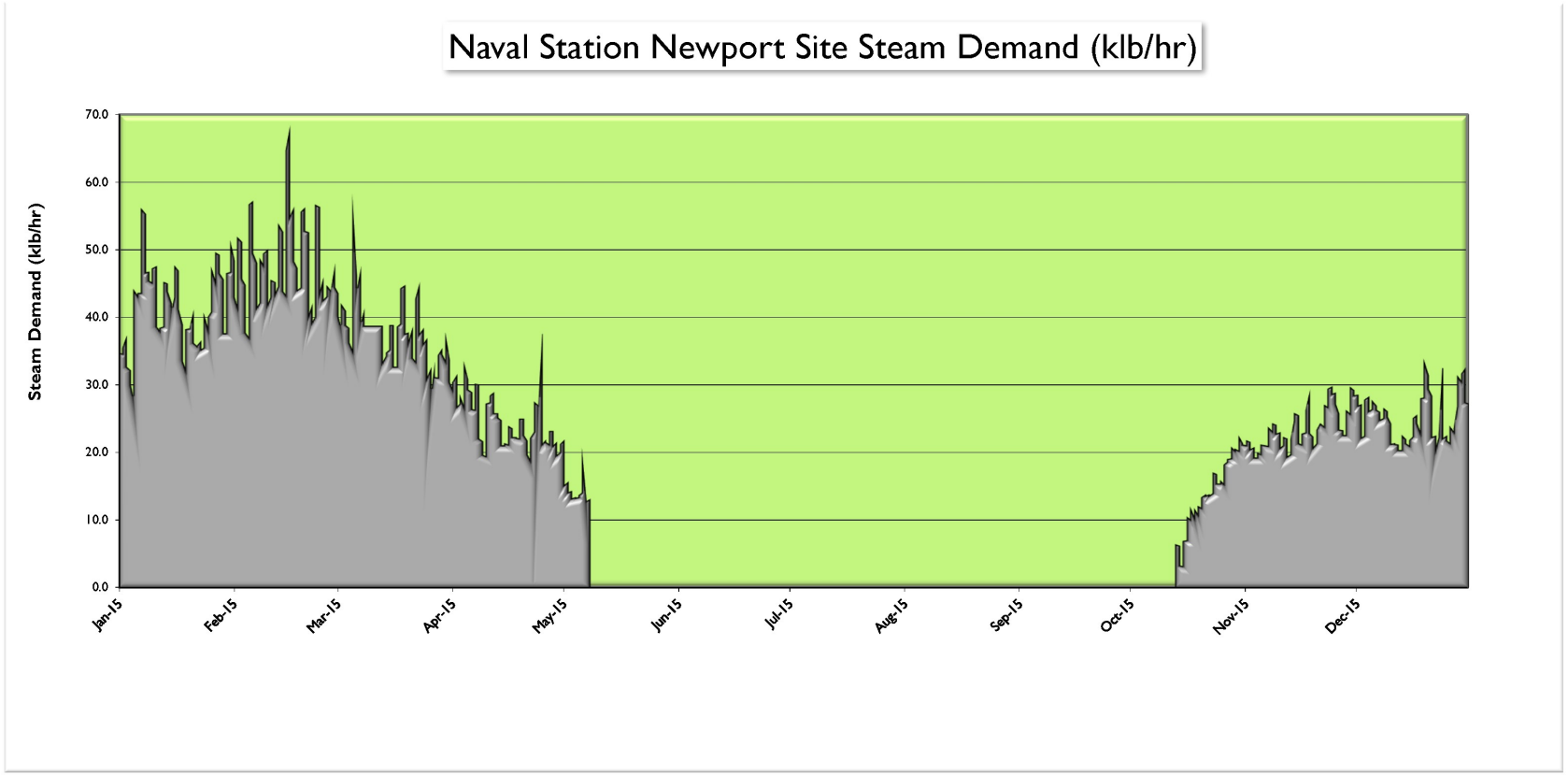
- Types of Engines and Configuration of Equipment are Modeled Based on Agreed Upon Electrical, Steam and Chilled Water Loads
- Test the Model Based on Changes in Electrical and Natural Gas Commodity Cost
- Provide Options for Various Levels of Runtime, Import, Inlet Air Cooling and Steam Turbine Configurations
- Include the Cost of Long Term Maintenance Contracts in Model
- Discuss Other Energy Conservation Projects or Capital Projects that May Alter Site Thermal and/or Electrical Loads that Would Effect Modeling
- Verify Natural Gas Pressure Available at Site

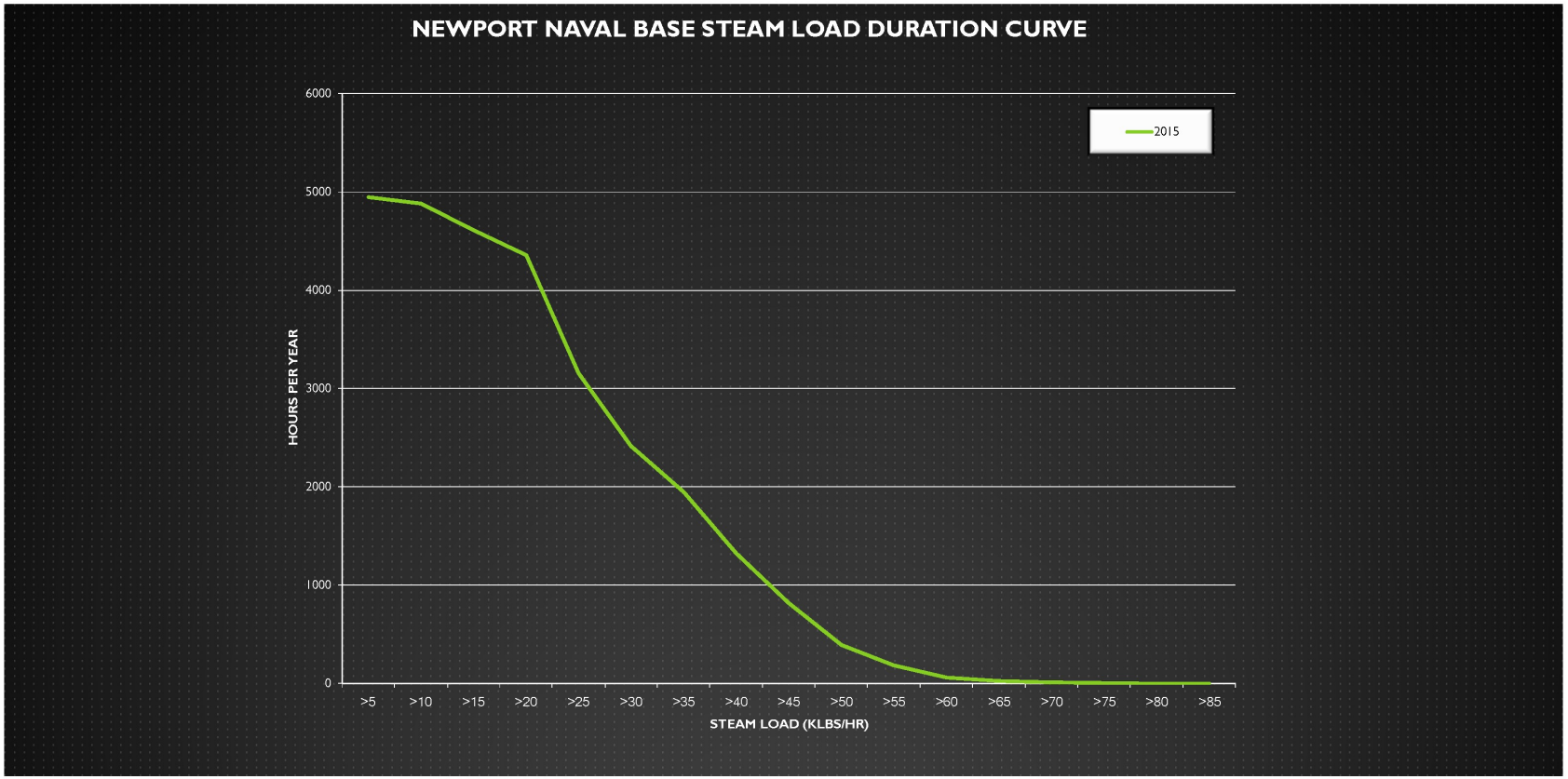
What Happens Next?

- Discuss other Possible Summer Thermal Loads that Could be Added to the 7CC CHP Plant Concept
- Review 7CC Plant Configuration Options and Discuss Pro's and Con's of Each
- Review Naval Station Newport Study for Critical Loads
- Develop Rough Estimates of Cost Based on Previous Project Experience
- Narrow Project Options Down to One or Two Configurations and Begin Discussions with National Grid Regarding Concept and Potential Incentives


NEWPORT NAVAL BASE - HOURLY ELECTRICAL LOAD
2013-2014
2014-2015
2015-2016
SITE ELECTRICAL DEMAND (KW)
18500
16500
14500
12500
10500
8500
6500
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
3/1/14
4/1/14
5/1/14
6/1/14
7/1/14
8/1/14
9/1/14


NEWPORT NAVAL BASE ELECTRICAL LOAD DURATION CURVE
HOURS PER YEAR
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
7000 7500 8000 8500 9000 9500 10000 10500 11000 11500 12000 12500 13000 13500 14000 14500 15000 15500 16000 16500 17000 17500 18000
ELECTRICAL LOAD
Oct 2013- Sept 2014
Oct 2014- Sept 2015
Oct 2015- Sept 2016


Naval Station Newport Site Steam Demand (klb/hr)
Steam Demand (klb/hr)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15


NEWPORT NAVAL BASE STEAM LOAD DURATION CURVE
2015
HOURS PER YEAR
6000
5000
4000
3000
2000
1000
0
>5
>10
>15
>20
>25
>30
>35
>40
>45
>50
>55
>60
>65
>70
>75
>80
>85
STEAM LOAD (KLBS/HR)

POTENTIAL PLANT LOCATION

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 4/23/2018 10:18:03 AM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: Navy 042318.pptx
Attachments: Navy 042318.pptx

These are just talking points.

Navy 042318.pptx

nationalgrid

- Naval Station Newport history expands back to revolutionary war as an active American and French Port
- Located on the west coast of Aquidneck Island with 31 miles of shoreline and 6000 acres and 6.1 million sq ft of conditioned space. Includes NUSWC(Naval Undersea Warfare Center)
- Main Boiler Plant – Built in 1942, provides steam to all systems via a network of piping for 200 buildings at 150 PSIG output. Four main boilers (2) 70,000, 75,000 and 84,000.(lbm/hr)
- 3 Boilers are run in the peak of the winter. #4 Oil is used when called; under a non-firm Natural Gas contract.
- 3rd Largest Employer in the state; approximately 7000 employees.

nationalgrid

- 8.0 MW Gas Turbine Generator
- $7 million Energy Efficiency Incentive
- $242,000 Performance Payments over 10 years
- Designed at 59% HHV System Efficiency
- 36,156 Mwh Net
- NG increase 300,000 MMBtu
- Oil reduction 33,500 MMBtu
- Boiler Fuel offset 165,000 therms

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 5/2/2018 3:33:33 PM
To: Moreira, David [david.moreira@nationalgrid.com]
CC: Paine, Fred [fred.paine@nationalgrid.com]; Isberg, John F. [john.isberg@nationalgrid.com]; McAteer, Michael L. [michael.mcateer@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Ryan, Michael [michael.ryan@nationalgrid.com]; Horan, Timothy F. [timothy.horan@nationalgrid.com]; Kresse, Ted [ted.kresse@nationalgrid.com]
Subject: : Newport Press Release Distribution for Navy Solar and CHP
Attachments: Newport Press Release_FINAL.docx
Importance: High

David
The Navy and BQ just looking for a nod from us that the attached press release is OK to release, they are looking to release this ASAP . Do we want to suggest a statement regarding the $7 million dollar incentive or better to not mention ???? ...thoughts
Thanks
Jeff

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

-----Original Message-----
From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Wednesday, May 02, 2018 11:07 AM
To: Dunham, Jeffrey B.; Ferris, Gerald Jr
Cc: Paul Curran; Carey Kling
Subject: EXT || FW: Newport Press Release Distribution

Jeff - here is the revised press release. The Navy is hot to trot, so please let us know ASAP if you have any issues. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

-----Original Message-----
From: Paul Curran
Sent: Wednesday, May 2, 2018 10:32 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>; Carey Kling <carey.kling@bqenergy.com>; Keith Christensen <keith.christensen@bqenergy.com>
Subject: FW: Newport Press Release Distribution

Paul F Curran, PE
Managing Director BQ Energy llc

www.bqenergy.com
office: (845) 473 0300
mobile: (914) 844 0894

400 Market Industrial Park
Suite 32
Wappingers Falls, NY 12590

BQ Energy supports the Lets Share the Sun Foundation.

-----Original Message-----
From: Pascual, Beth A CIV NAVFAC LANT, PW64 <beth.pascual@navy.mil>
Sent: Wednesday, May 2, 2018 10:27 AM
To: Paul Curran <paul.curran@bqenergy.com>; Tim Ryan <tim.ryan@bqenergy.com>
Subject: FW: Newport Press Release Distribution

-----Original Message-----
From: Ryczek, Emily [USA] [mailto:Ryczek_Emily@bah.com]
Sent: Wednesday, May 02, 2018 9:11 AM
To: Rama, Lisa M CIV NAVSTA Newport, N00PA; Price, Brittany [USA]; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Brundage, Lisa CTR NAVFAC HQ, REPO
Subject: [Non-DoD Source] Newport Press Release Distribution

Good Morning All,

After consolidating all edits from the base, BQ and National Grid, attached is the final version of the Newport press release! We offer the base PAO and utility to distribute through their channels, and we'll request NAVFAC PAO shop to distribute as well. Please feel free to adjust the two highlighted sections at the beginning of the press release with the appropriate information pertaining to the distribution channel.

Beth, do you mind sending this to BQ to allow them to distribute the press release?

Thank you!

Very Respectfully,

Emily Ryczek

Department of the Navy - REPO Contractor

Booz Allen Hamilton

Cell: 301-775-2694

Press Release: Alternative Energy Enhanced Use Lease Signed at Naval Station Newport

DATE

LOCATION OF RELEASE – On April 23, 2018, the Department of the Navy (DON) and Solar Breakers, LLC, a BQ Energy, LLC subsidiary, signed a 37-year lease to complete a large-scale off-base solar photovoltaic (PV) facility and on-base combined heat and power plant (CHP) at Naval Station (NAVSTA) Newport.

The planned 21-megawatt PV facility is scheduled to come online in the summer of 2019 and will be located on 75 acres of land at a Navy-owned former tank-farm and land-fill property north of the main installation bordering the towns of Middletown and Portsmouth. Solar Breakers, LLC will build, own, operate and maintain the solar facility.

In exchange for providing land for the solar facility, NAVSTA Newport will receive a CHP plant as in-kind consideration once proper controls are installed to support the base's critical facilities in the event of an electric grid outage. In addition, BQ Energy is collaborating with National Grid to receive a financial incentive for the CHP plant to improve the state's energy portfolio and improve the base's resiliency, mutually benefiting all parties. The 7.9 MW CHP plant is estimated to come online in late 2019.

Reliable energy is important to the mission of NAVSTA Newport, home to over fifty separate Navy, Marine Corps, Army Reserve, U.S. Coast Guard and NOAA commands, and the base has always maintained a strong commitment to energy security. The CHP will enhance the energy resilience of the base.

Capt. Ian L. Johnson, Commanding Officer of Naval Station Newport, states, "Energy reliability is critical to mission success. This project will take underutilized areas and turn them into solar resources that reduce pollution while generating reliable, renewable power for the base and the community. We're excited about this opportunity and look forward to working with our partners in the years ahead."

The project at NAVSTA Newport was made possible by collaborative efforts between the DON and private entities to identify aligned energy objectives. For Solar Breakers, LLC, this project diversifies their energy projects portfolio in terms of its larger resilience efforts.

The Navy continues to be a leader in energy innovation and deployment of energy projects to enhance energy resilience on DON installations, which further strengthens the DON's ability to complete its mission and global support the warfighter. The DON continues to explore the next generation of energy technology advancements, such as battery storage, fuel cells, microgrids, and smart grid deployment to further enhance the DON's energy security, operational capability, strategic flexibility, and resource availability.

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 5/4/2018 6:00:10 PM
To: Paine, Fred [fred.paine@nationalgrid.com]
Subject: Fwd: New Gas Service to Navy CHP Project - BQ Energy LLC

FYI

Begin forwarded message:

From: "Dion, Thomas" <Thomas.Dion@nationalgrid.com>
Date: May 4, 2018 at 11:55:53 AM EDT
To: "james.f.carlson1@navy.mil" <james.f.carlson1@navy.mil>
Cc: "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
Subject: New Gas Service to Navy CHP Project - BQ Energy LLC

Good afternoon Jim,
I have received a signed Commercial Gas Service/ Main Agreement from BQ Energy LLC.
The agreement between National Grid and BQ Energy LLC will allow National Grid to invoice BQ Energy LLC for all gas usage consumed by the new CHP unit located at the Power Plant at Naval Station Newport.
The agreement also covers all costs associated with a system reinforcement needed to supply the required gas as well as the cost of the service pipe from the existing main in the property to the new unit.
What the agreement does not cover is approval from the Navy to install the new service on Navy property.

We are looking for a vehicle to obtain that approval.
Contract Mod or similar?

National Grid would like to install approx. 100' of new 8" Plastic 99 psi service extending from the existing 12" WS 99 psi main near the boiler plant.
Exact meter location for new CHP unit to be determined.

Again, the gas consumed by the CHP unit will be billed to BQ Energy LLC.

Please review and let me know what steps are needed.
Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

From: Mokey, Mike [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MIKE.MOKEY]
Sent: 5/7/2018 2:00:48 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

Thanks

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:50 AM
To: Mokey, Mike
Subject: RE: Naval Station Newport CHP Project

No, we are actually pretty good.
Just the reinforcement to send gas from the east side of the island to the west.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Mokey, Mike
Sent: Monday, May 07, 2018 9:34 AM
To: Dion, Thomas
Subject: RE: Naval Station Newport CHP Project

Awesome Tom. Is Newport under any constraints from the SRI capacity/ transmission project?

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

Good morning and great news!
The Naval Station Newport CHP project has been sold.

Congratulations to Jeff Dunham from our EE Team for a job well done.

The new unit will be located near the Power Plant at Naval Station Newport and will be owned and operated by;

Customer
BQ Energy LLC

400 Market Industrial Park, Suite 32
Wappinggers Falls, NY 12590

Contact

James Falsetti
203-512-7446
Jim.falsetti@bgenergy.com

Rate 24EN C&I Extra Large High Load FT1
126,000 CFH gas flow.
We will supply line pressure thru the meter and the customer will be responsible for boosting the gas pressure to what is required.

In order to supply the new cogen unit we need a new 100' 8" service on the property and approx. 3000' of 12" WS 99 psi growth reinforcement on Green End Ave Middletown.
Green End Ave is on the list of streets to be repaved so we need to coordinate with the Town of Middletown for the reinforcement.

We will handle digging on Navy property with a Navy Contract Modification that is in the works.

We need to get the Growth Reinforcement keyed up as soon as possible so we can meet the need date of June 2019.

This is an awesome project for both the Energy Efficiency and Gas Growth teams.
In addition to the energy savings realized, this project will bring in 533,731 ADTH and $720,354 in new margin.

This project has been in the works for over 1 ½ years and was signed last week.

Please let me know if you need any additional information.

Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/7/2018 2:05:17 PM
To: Carlino, Mario [mario.carlino@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

https://na52.salesforce.com/006d000000uLEUl

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Carlino, Mario
Sent: Monday, May 07, 2018 10:05 AM
To: Dion, Thomas
Cc: Maclean, Lauren
Subject: RE: Naval Station Newport CHP Project

Tom,

What address in GF can I find this under?

Thanks

Mario Carlino
National Grid
Principal Project Manager,
Complex Customer Connections Gas, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

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Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/7/2018 1:52:14 PM
To: Maclean, Lauren [lauren.maclean@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

https://na52.salesforce.com/006d000000uLEUI

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Maclean, Lauren
Sent: Monday, May 07, 2018 9:38 AM
To: Dion, Thomas
Subject: RE: Naval Station Newport CHP Project

Can you send me the link to Gridforce? I'll get this started and request a Design map for the growth reinforcement
Thanks!

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

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This project has been in the works for over 1 ½ years and was signed last week.

Please let me know if you need any additional information.

Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/7/2018 1:29:59 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

$720,000 per year for the next 20 years.
That will pay a few salaries!

Thomas Dion C.E.M.
National Grid
280 Melrose St
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F. 401-406-3434

From: Dunham, Jeffrey B.
Sent: Monday, May 07, 2018 9:29 AM
To: Dion, Thomas
Subject: RE: Naval Station Newport CHP Project

Thanks Tom

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

Good morning and great news!
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Congratulations to Jeff Dunham from our EE Team for a job well done.

The new unit will be located near the Power Plant at Naval Station Newport and will be owned and operated by;

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400 Market Industrial Park, Suite 32
Wappinggers Falls, NY 12590
Contact
James Falsetti
203-512-7446
Jim.falsetti@bgenergy.com

Rate 24EN C&I Extra Large High Load FT1
126,000 CFH gas flow.
We will supply line pressure thru the meter and the customer will be responsible for boosting the gas pressure to what is required.

In order to supply the new cogen unit we need a new 100' 8" service on the property and approx. 3000' of 12" WS 99 psi growth reinforcement on [redacted] is on the list of streets to be repaved so we need to coordinate with the Town of Middletown for the reinforcement.

We will handle digging on Navy property with a Navy Contract Modification that is in the works.

We need to get the Growth Reinforcement keyed up as soon as possible so we can meet the need date of June 2019.

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Thanks
Tom

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Providence, RI 02907
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F. 401-406-3434

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/8/2018 12:12:43 PM
To: Flynn, Brandon [brandon.flynn@nationalgrid.com]
Subject: Re: Naval Station Newport CHP Project

My best guess at the time.
Can we get away with 8" PE?

Sent from my Mobile Device

On May 8, 2018, at 7:42 AM, Flynn, Brandon <Brandon.Flynn@nationalgrid.com> wrote:

> Tom,
>
> In your proposed sketch you drew in a proposed 12 inch WS 99 psig service with total connected load of 157,000 CFH. Was there any reason for the sizing?
>
> Thanks,
>
> Brandon W. Flynn
> Associate Engineer
> Long Term Planning & Gas Operations Engineering
> nationalgrid
> 40 Sylvan Rd, Waltham MA
> Office: (781) 907-3457
> Cell: (508) 850-6881

From: Carlino, Mario
Sent: Monday, May 07, 2018 3:46 PM
To: Flynn, Brandon
Cc: Dion, Thomas; Doyle, Kerrie; Maclean, Lauren; Isgro, Anthony; Caliri, Stephen A.
Subject: RE: Naval Station Newport CHP Project

Also, Brandon can we use 8 Plastic instead of 8" WS for the service?

Mario Carlino
National Grid
Principal Project Manager,
Complex Customer Connections Gas, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

From: Carlino, Mario
Sent: Monday, May 07, 2018 1:20 PM
To: Flynn, Brandon

Cc: Dion, Thomas; Doyle, Kerrie; Maclean, Lauren; Isgro, Anthony; Caliri, Stephen A.
Subject: Re: Naval Station Newport CHP Project

Thank you Brandon. Please make change in gridforce.

Thank you

Mario Carlino

National Grid
Principal Project Manager
Gas Sales & Prog. Operations, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

On May 7, 2018, at 1:05 PM, Flynn, Brandon <Brandon.Flynn@nationalgrid.com> wrote:

> Mario,
>
> Yes 12 inch PL will be adequate and will also help fast track the process. I have confirmed with Tony and Steve.
>
> Lauren I will work on the design drawing as soon as possible.
>
> Thank you,
>
> Brandon W. Flynn
> Associate Engineer
> Long Term Planning & Gas Operations Engineering
> nationalgrid
> 40 Sylvan Rd, Waltham MA
> Office: (781) 907-3457
> Cell: (508) 850-6881

From: Carlino, Mario
Sent: Monday, May 07, 2018 11:57 AM
To: Flynn, Brandon
Cc: Dion, Thomas; Doyle, Kerrie; Maclean, Lauren
Subject: Re: Naval Station Newport CHP Project

Hi Brandon,

Could we use 12 plastic instead of 12" wrapped steel? I know we had a similar one of these and you were able to change it. Would make the project move along quicker.

Thanks

Mario Carlino

National Grid
Principal Project Manager
Gas Sales & Prog. Operations, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

On May 7, 2018, at 11:54 AM, Doyle, Kerrie <Kerrie.Doyle@nationalgrid.com> wrote:

> Congratulations Everyone! Good Work!
>
> Tom,
> Let me know when the work package is put together and we can work with the team on fast tracking the reinforcement piece so we can get in before paving starts.
>
> Mario,
> Can you talk with construction and let them know this will be coming to them soon and what we need to do to fast track.
>
> Thanks,
> **Kerrie Doyle**
> **Manager, Complex Gas Connections**
> national**grid** | 40 Sylvan Rd, Waltham, Ma 02451
> ☎ Tel 781-907-2201 ☎ Mobile: 781-999-3251
> Kerrie.doyle@nationalgrid.com
>
> ---
> **From:** Dion, Thomas
> **Sent:** Monday, May 07, 2018 9:27 AM
> **To:** Maclean, Lauren <Lauren.Maclean@nationalgrid.com>; Carlino, Mario <Mario.Carlino@nationalgrid.com>
> **Cc:** Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Paine, Fred <Fred.Paine@nationalgrid.com>; Doyle, Kerrie <Kerrie.Doyle@nationalgrid.com>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>; Mokey, Mike <Mike.Mokey@nationalgrid.com>; Moreira, David <David.Moreira@nationalgrid.com>; Flynn, Brandon <Brandon.Flynn@nationalgrid.com>
> **Subject:** Naval Station Newport CHP Project
>
> Good morning and great news!
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Thanks
Tom

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F. 401-406-3434

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/10/2018 2:42:24 PM
To: Maclean, Lauren [lauren.maclean@nationalgrid.com]
CC: Carlino, Mario [mario.carlino@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project
Attachments: 0 Simon Pietri Dr Newport Sketch Updated.pdf; 0 Simonpietri Dr Newport Navy CHP Enviromental Form.pdf

As requested.
Also attached in GF

0 Simon Pietri Dr Newport Sketch ...

0 Simonpietri Dr Newport Navy C...

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Maclean, Lauren
Sent: Tuesday, May 08, 2018 10:13 AM
To: Dion, Thomas
Cc: Carlino, Mario
Subject: RE: Naval Station Newport CHP Project

Hi Tom,
Please provide an environmental form for the reinforcement. Also, is the sketch still accurate? I noticed the size of the pipe/material/CFH are different on the SLA verses the sketch. If I am going by the SLA, could you please revise the sketch?

Thank you!
Lauren

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

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F. 401-406-3434

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Confidential Document Withheld from Production

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/10/2018 2:25:03 PM
To: Maclean, Lauren [lauren.maclean@nationalgrid.com]
CC: Carlino, Mario [mario.carlino@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

PREMISES # 189617110

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Maclean, Lauren
Sent: Tuesday, May 08, 2018 11:48 AM
To: Dion, Thomas
Subject: RE: Naval Station Newport CHP Project

Hi Tom,
Do you have a premise number for the service?
Thanks,
Lauren

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

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P. 401-784-7153
F. 401-406-3434

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 5/15/2018 11:59:10 AM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

They seem to have a very cavalier approach to the whole thing

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Tuesday, May 15, 2018 7:58 AM
To: Dunham, Jeffrey B.
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

Oh well; that meeting they are requesting is probably more than an hour. Those questions are pretty in depth questions.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Tuesday, May 15, 2018 7:56 AM
To: Ferris, Gerald Jr
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

Keep in mind their top priority was getting the contract signed and the CHP is the red headed step child the solar is the carrot for them

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401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Tuesday, May 15, 2018 7:48 AM
To: Dunham, Jeffrey B.
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

These questions were square one questions. Shouldn't they have asked all these questions before they signed the documents?

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Tuesday, May 15, 2018 7:43 AM
To: Ferris, Gerald Jr
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

I think we have a long road ahead of us

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
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Providence, RI 02907
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401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Tuesday, May 15, 2018 7:41 AM
To: Dunham, Jeffrey B.
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

Sounds like that dumbass John Reichart again asking can they go to interruptible gas supply or any other fuels. Dope

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell

Gerald.ferris@nationalgrid.com

From: Dunham, Jeffrey B.
Sent: Tuesday, May 15, 2018 7:40 AM
To: Ferris, Gerald Jr
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

I'm not sure who is asking the questions BQ or the Navy

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Ferris, Gerald Jr
Sent: Tuesday, May 15, 2018 7:35 AM
To: Jim Falsetti; Dunham, Jeffrey B.
Cc: naveen kapur
Subject: RE: EXT || Navy CHP incentive paperwork_DON Comments.docx

Did these folks just read the offer letter and MRD? It sounds like a whole new level of folks are asking questions like we were 9 months ago on the project?

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Monday, May 14, 2018 11:16 PM
To: Dunham, Jeffrey B.; Ferris, Gerald Jr
Cc: Lori Cuervo; Paul Curran; naveen kapur
Subject: EXT || Navy CHP incentive paperwork_DON Comments.docx

Jeff and Jed, we will comments on this tomorrow. Will you be available for discussion Wednesday or Thursday?

Talk soon,
Jim

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 5/17/2018 5:15:33 PM
To: Jim Falsetti [jim.falsetti@bqenergy.com]; naveen kapur [naveenk@nkengineers.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Paul Curran [paul.curran@bqenergy.com]; Carey Kling [carey.kling@bqenergy.com]
Subject: RE: EXT || RE: NKE responses
Attachments: Navy CHP incentive paperwork_DON - JED Comments 5-17-18.docx

Attached are my comments.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, May 17, 2018 6:59 AM
To: naveen kapur; Dunham, Jeffrey B.; Ferris, Gerald Jr; Paul Curran; Carey Kling
Subject: EXT || RE: NKE responses

All – attached is the BQ comments added to NKE comments (in red, boldfaced and highlighted for clarity).

Big picture: No interruptible gas option, no dual fuel for duct burner or CHP is in the scope; limited black start capability; additional items such as these are possible as (1) a future modification or (2) if the Navy wishes to increase their funding and/or (3) forego the $7million performance incentive.

The balance of the comments will be addressed during the next phase in the design, and we should add **some** of these to the June 5 or 6 meeting agenda.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur <naveenk@nkengineers.com>
Sent: Wednesday, May 16, 2018 10:19 PM
To: Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Ferris, Gerald <Gerald.Ferris@nationalgrid.com>; Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>; Carey Kling <carey.kling@bqenergy.com>
Subject: FW: NKE responses

FYI

Naveen Kapur, PE

N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: naveen kapur <naveenk@nkengineers.com>
Date: Tuesday, May 15, 2018 at 8:57 AM
To: Jim Falsetti <jim.falsetti@bgenergy.com>
Subject: NKE responses

As promised.
Feel free to call to discuss

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

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Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/22/2018 6:20:41 PM
To: Carlino, Mario [mario.carlino@nationalgrid.com]
Subject: RE: 0 Simonpietri Dr.., Newport - Naval Station Newport CHP Project

You going to get it?
I think you should

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Carlino, Mario
Sent: Tuesday, May 22, 2018 1:59 PM
To: Dion, Thomas
Subject: RE: 0 Simonpietri Dr.., Newport - Naval Station Newport CHP Project

no

Mario Carlino
National Grid
Principal Project Manager,
Complex Customer Connections Gas, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

From: Dion, Thomas
Sent: Tuesday, May 22, 2018 1:36 PM
To: Carlino, Mario
Subject: RE: 0 Simonpietri Dr.., Newport - Naval Station Newport CHP Project

Mario,
Do you have access?

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Carlino, Mario
Sent: Tuesday, May 22, 2018 1:03 PM
To: Afonso, Jacques R.
Cc: Fonseca, Craig; Jackman, Robert; Dion, Thomas; Maclean, Lauren; Gavula, David L.
Subject: 0 Simonpietri Dr.., Newport - Naval Station Newport CHP Project

Hi Jac,

I was told that you can guide and walk Craig and Robert through the access process. They need Access in order to design the large meter installation at this address.

Thank you

Mario Carlino
National Grid
Principal Project Manager,
Complex Customer Connections Gas, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

From: Fonseca, Craig
Sent: Monday, May 21, 2018 11:51 AM
To: Carlino, Mario
Subject: RE: Naval Station Newport CHP Project

Good Morning

Is there a chance Bob and I can gain access to the building to layout the new meter service??

Craig

From: Carlino, Mario
Sent: Monday, May 14, 2018 7:31 AM
To: Fonseca, Craig
Subject: RE: Naval Station Newport CHP Project

8", 100' long service.

Mario Carlino
National Grid
Principal Project Manager,
Complex Customer Connections Gas, RI
477 Dexter St., Providence, RI 02907
Office Phone: 401-784-7028

From: Fonseca, Craig
Sent: Monday, May 14, 2018 6:42 AM
To: Carlino, Mario
Subject: RE: Naval Station Newport CHP Project

Mario,

Do we know what size the service to the plant will be?

Thanks,
Craig

From: Carlino, Mario
Sent: Monday, May 07, 2018 3:31 PM
To: Biron, Stephen; Fonseca, Craig
Cc: Dion, Thomas; Maclean, Lauren
Subject: RE: Naval Station Newport CHP Project

Hi Steve,

What size gas meter will we need for this load:
Rate 24EN C&I Extra Large High Load FT1
126,000 CFH gas flow.
We will supply line pressure thru the meter and the customer will be responsible for boosting the gas pressure to what is required.

Also, Craig, I want to add this on your radar from a design perspective.

Thanks

Mario Carlino
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Office Phone: 401-784-7028

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
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F. 401-406-3434

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 7/19/2018 9:26:55 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Caliri, Stephen A. [stephen.caliri@nationalgrid.com]
Subject: 126 MMBTU/hr value
Attachments: HK T70 performance[2].pdf

Hi Tom –

Steve Caliri tells me he got a request for 84 + 42 = 126 for the Navy CHP project. In the CHP modeling file, I see the engine consuming up to 102 with coincident duct burner up to 30 (102 + 30 = 132); by any chance, is the 84 MMBTU/hr a nameplate value from the originally proposed 7 MW engine, and not reflective of what became a 7.965 MW engine near the end of project development? The 7.965 MW engine spends less than 800 out of 4500 hrs below 90 MMBTU/h; the average for the 4500 hrs is 93.

Or, perhaps related, did we take into account the fact that a gas turbine engine consumes more fuel (and makes more electricity) the lower the inlet air temperature? Meaning, a nominal rating at 60 or 70F is a bit different than the potential cold weather operating condition. In the attached on page 5, you can see the difference in fuel flow vs ambient temperature (also note that these are LHV values)

HK T70 performance[2].pdf

Thanks,
Mark

Confidential Document Withheld from Production

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 7/20/2018 11:23:16 AM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: navy convo

Hi -

Steve Caliri said the reason they proposed being interruptible at a lower termperature was that I suggested to him that could be a solution to their rather sizable mistake of telling the customer NGrid could make Navy CHP a firm gas load. I don't prefer taking on gas supply work, but if it interacts with what I need for you for the division's IRs, I'd prefer knowing where we stand so I can hopefully help thread the needle of the existing predicament.

It would be helpful if you can help Dave & Matt understand that the Division is asking very specific & detailed questions about the BCR, which will now have to change right in front of them because the Division's consultant apparently knew more about the gas supply situation to Aquidnick island than NGrid's gas supply team. IMO, this isn't an overly cautious situation, there is a real risk the BC could drop below 1 in full view with the Division (they think this question killed the project) due to the change in fuel benefits claims; so far it still looks ok, but I'm still working with Steve C on what the MMBTU/day threshold really is, and what that does to the energy model and BCR. I don't think Dave or Matt have an intuitive sense of how a BCR works with 3 way fuel switching (electricity, gas, oil) on a large CHP project that only had a 1.36 BCR to start with.

FWIW, the recent combination of events doesn't bode well for my re-org situation; my guess at this point is that either Dave M was Mark D's sponsor in the reorg, or Mark D has untouchable status for a reason important to people high up. Either way, I had the rather unpalatable choice of leaving something I like doing and I'm good at, or returning to work for Mark D, which you rescued me from about 3 yrs ago. In the end, I'm probably just not suited to the NGrid environment, for reasons that don't make sense to me, but that doesn't change the situation.

Mark

From: Henschel, Rachel
Sent: Thursday, July 19, 2018 11:24 PM
To: Sevier, Mark
Subject: RE: navy convo

Hey,

Thanks for today. the call was a better outcome than I thought was going to happen. I heard Jeff has a mtg with them Monday coincidentially and was going to broach the topic of 'interruptible.' I heard separate comments both from Dave and Matt F that they did not like you digging in to the bc at the end of the call because they thought this would be small dollars. You still have to dig in to the bc because that' s the right thing to do, I took the comments as a 'he' s being overly cautious on this.' There may have been other nuances I didn' t under stand there.

From: Sevier, Mark
Sent: Thursday, July 19, 2018 1:57 PM
To: Henschel, Rachel
Subject: RE: navy convo

My approach: whatever it takes to move it forward…

From: Henschel, Rachel
Sent: Thursday, July 19, 2018 1:41 PM
To: Sevier, Mark
Subject: RE: navy convo

Was this a joke?

You been working in gas engineering too?

From: Sevier, Mark
Sent: Thursday, July 19, 2018 12:03 PM
To: Henschel, Rachel

Subject: navy convo

If the call starts turning into a blame assessment session, feel free to say 'for the purposes of today's call, let's assume Mark S was the one to make this mistake, and now he wants to know exactly where we stand, since there may be some options with the fundamental CHP project'

Message

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 7/20/2018 1:37:41 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]
CC: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: Navy 126 MMBTU/hr value

As we discussed hold off on contacting anyone for now

Jeffrey Dunham
Certified Energy Manager
LEED Accredited Professional (AP)
National Grid
280 Melrose St.
Providence, RI 02907
401-784-7638 Office
401-527-4055 Cell
315-460-8954 Fax

From: Sevier, Mark
Sent: Friday, July 20, 2018 9:17 AM
To: Dunham, Jeffrey B.
Cc: Ferris, Gerald Jr
Subject: FW: Navy 126 MMBTU/hr value

Hi Jeff –

Is it ok to ask the engineer(s) (as Tom suggests below) on the project development side of this project if they still agree with the 126 MMBtu/h gas demand value from 3/8/17?

From what I've heard, the CHP size changed at nearly the end of project development, so I suspect the 126 may have changed as well.

Thanks,
Mark

From: Dion, Thomas
Sent: Friday, July 20, 2018 9:11 AM
To: Sevier, Mark
Cc: Ferris, Gerald Jr; Caliri, Stephen A.
Subject: RE: 126 MMBTU/hr value

Original request into gas engineering was 157 dth

On 3/8/2017 the request was modified to 126 dth.

Thomas Dion C.E.M.
National Grid

280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Sevier, Mark
Sent: Friday, July 20, 2018 9:07 AM
To: Dion, Thomas
Cc: Ferris, Gerald Jr; Caliri, Stephen A.
Subject: RE: 126 MMBTU/hr value

What vintage is the 84 + 42 = 126 calculation? As in, when did you get that information?

From: Dion, Thomas
Sent: Friday, July 20, 2018 8:38 AM
To: Sevier, Mark
Cc: Ferris, Gerald Jr; Caliri, Stephen A.
Subject: RE: 126 MMBTU/hr value

Mark,
We make every effort not to interpret equipment loads from spec sheets.
We always request that the customer/equipment supplier detail the hourly consumption.

Those numbers were given to us from BQ, or BQ's Engineers.

If you are looking for more detail I would say check with them.

Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Sevier, Mark
Sent: Thursday, July 19, 2018 5:27 PM
To: Dion, Thomas
Cc: Ferris, Gerald Jr; Caliri, Stephen A.
Subject: 126 MMBTU/hr value

Hi Tom –

Steve Caliri tells me he got a request for 84 + 42 = 126 for the Navy CHP project. In the CHP modeling file, I see the engine consuming up to 102 with coincident duct burner up to 30 (102 + 30 = 132); by any chance, is the 84 MMBTU/hr a nameplate value from the originally proposed 7 MW engine, and not reflective of what became a 7.965 MW engine

near the end of project development? The 7.965 MW engine spends less than 800 out of 4500 hrs below 90 MMBTU/h; the average for the 4500 hrs is 93.

Or, perhaps related, did we take into account the fact that a gas turbine engine consumes more fuel (and makes more electricity) the lower the inlet air temperature? Meaning, a nominal rating at 60 or 70F is a bit different than the potential cold weather operating condition. In the attached on page 5, you can see the difference in fuel flow vs ambient temperature (also note that these are LHV values)
<< File: HK T70 performance[2].pdf >>

Thanks,
Mark

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 7/30/2018 9:18:40 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: EXT || RE: Naval Station Newport CHP - customer knew about gas supply limitation

Minor modification to my note below - I'm not sure who responded to me; from another e-mail I wrote, it could have been Jeff responding to the idea that the CHP system would be on firm gas, although my question had been about the whole steam plant. As these e-mails reminded me of this issue, I recall no one really wanting to discuss it beyond the verbal assurance that NGrid had sufficient gas supply.

-----Original Message-----
From: Sevier, Mark
Sent: Monday, July 30, 2018 1:12 PM
To: Henschel, Rachel
Subject: FW: EXT || RE: Naval Station Newport CHP - customer knew about gas supply limitation

Unfortunately, below the customer expresses knowledge of the gas supply limitation, which then led me to point the question to Tom Dion, who apparently answered for the NGrid side of the system without considering the AGT situation. Also unfortunate is that I don't have a written response from Tom; I assume he called me, since I have no reason to write the below e-mail without input from gas supply, of which I had no knowledge.

Mark

-----Original Message-----
From: Sevier, Mark
Sent: Wednesday, January 10, 2018 3:13 PM
To: 'Reichert, John C CIV NAVFAC MIDLANT, PWD Newport'; Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport; Dion, Thomas
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

Hi John -

Thanks to everyone for getting the requested information.

I asked internally about NGrid gas service for the proposed Navy CHP plant, and was told that NGrid will be able to serve the proposed CHP plant winter gas load with a small system reinforcement, so my understanding is that the Navy's main steam plant will not need to continue to be interruptible from NGrid's perspective. In my role (calculating the NGrid benefit/cost ratio for the CHP based on savings estimation), I need to have reasonably accurate operating parameters & expected fuel blend for the proposed CHP plant, which is why I'm bringing this up as something that might need more discussion, so we make sure we're all on the same page about plant operation & expected fuel mix.

Let me know if I can help facilitate this discussion, as appropriate.

Thanks,
Mark

-----Original Message-----
From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
Sent: Wednesday, January 10, 2018 8:32 AM
To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
Subject: EXT || RE: Naval Station Newport CHP Questions

Bob Mulhern provided the information in the attached email.

Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of

the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.

The makeup water will be required as a part of the CHP design and the existing system would have to be modified for this purpose. NAVSTA Newport still does not know details about the boilers related to the CHP and any specific requirements for electricity, steam, water, chemicals, size, data, security and controls and makeup water requirements for the CHP.

John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, January 08, 2018 10:52 AM
To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
Subject: [Non-DoD Source] Naval Station Newport CHP Questions

Good morning Dan and John,

Jim, Naveen and I have been working with National Grid on the CHP project and they are requesting additional information to update the model to make sure nothing substantial has changed that would affect the benefits of the project. Can you please review the list below and call me at your convenience to discuss?

1. Can you please provide the make and model of the existing steam meters at the boiler plant and when they were last calibrated?
2. Can you confirm if there is a water meter at the boiler plant that can be used to verify makeup water to the boiler system? If so, can you please provide water usage figures?
3. Can you please provide more recent steam metering data for the 7CC boiler plant as the data in the model ended in May 2016? The data previously provided included steam flow per boiler as well as steam flow to the deaerator
4. Can you please provide #2 and #4 monthly fuel oil usage for the 7CC boiler plant for all of 2016 and 2017 to date?
5. Can you please provide the minimum steaming rate for boiler #4 when fired on natural gas?

Thank you both for your assistance.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street - Unit 31A

Marlborough, CT 06447

860-295-3220 O

860-883-6486 C

Greg.Hester@EBDEngineering.com

www.ebdengineering.com <http://www.ebdengineering.com>

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 7/30/2018 5:03:07 PM
To: Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Foran, Matthew A. [matthew.foran@nationalgrid.com]
BCC: m_sev@yahoo.com
Subject: FW: EXT || RE: Naval Station Newport CHP Questions

Below is the mail I sent to the group after sending Tom Dion a request to confirm gas supply to the Navy's central steam plant.

IMO, this is academic if the reality is that the AGT can't support the plant on firm gas, but it at least documents that the question came up and I attempted to get it resolved; unfortunately it appears I wasn't given the right information, for whatever reason.

Mark

-----Original Message-----
From: Sevier, Mark
Sent: Wednesday, January 10, 2018 3:13 PM
To: 'Reichert, John C CIV NAVFAC MIDLANT, PWD Newport'; Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport; Dion, Thomas
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

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Sent: Wednesday, January 10, 2018 8:32 AM
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Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
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The makeup water will be required as a part of the CHP design and the existing system would have to be modified for this purpose. NAVSTA Newport still does not know details about the boilers related to the CHP and any specific requirements for electricity, steam, water, chemicals, size, data, security and controls and makeup water requirements for the CHP.

John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, January 08, 2018 10:52 AM
To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
Subject: [Non-DoD Source] Naval Station Newport CHP Questions

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4. Can you please provide #2 and #4 monthly fuel oil usage for the 7CC boiler plant for all of 2016 and 2017 to date?
5. Can you please provide the minimum steaming rate for boiler #4 when fired on natural gas?

Thank you both for your assistance.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street - Unit 31A

Marlborough, CT 06447

860-295-3220 O

860-883-6486 C

Greg.Hester@EBDEngineering.com

www.ebdengineering.com <http://www.ebdengineering.com>

Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 8/2/2018 4:13:24 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]
Subject: FW: EXT || BCR analysis for Newport Naval Base
Attachments: Newport CHP Model - 8-17-17 Taurus & Mercury Additional Options .pdf

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Wednesday, August 30, 2017 12:22 PM
To: Ferris, Gerald Jr
Cc: Jim Falsetti; Greg Hester
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed
Here are the cost estimates for the options, as stated in the attachment, that might work:
Base Option - [redacted]
Option 1 -
Option 2 -
Option 3 -

Thanks Jed

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>
Date: Tuesday, August 29, 2017 at 8:22 AM
To: naveen kapur <naveenk@nkengineers.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Can you give me a high level cost? $3500/KW??? We are trying to bend our rules internally but it is hard to discuss particulars with the higher ups when I cannot give them a real BCR run.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Tuesday, August 29, 2017 8:04 AM
To: Jim Falsetti; Greg Hester; Ferris, Gerald Jr; Dunham, Jeffrey B.
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jim
Please see my earlier emails. I think this is an exercise in futility as we can't get past the first hurdle of efficiency. Also the Navy has ruled out the options with limited operation during the summer months. Not sure what the purpose of the BCR tool will be for all these options. If you still want to pursue it, we will need 3 weeks to estimate the costs of the options
Thanks

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

From: Jim Falsetti <jim.falsetti@bqenergy.com>
Date: Tuesday, August 29, 2017 at 4:08 AM
To: Greg Hester <greg.hester@ebdengineering.com>, "Ferris, Gerald" <Gerald.Ferris@nationalgrid.com>, naveen <naveenk@nkengineers.com>, "Dunham, Jeffrey B." <Jeffrey.Dunham@nationalgrid.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Jed and Jeff – the Navy has asked for the BCR results for each of these cases. Do you have them? If you could add a column called BCR results, that would be great. Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Friday, August 18, 2017 11:23 AM
To: Ferris, Gerald Jr <Gerald.Ferris@nationalgrid.com>; Jim Falsetti <jim.falsetti@bqenergy.com>; naveen <naveenk@nkengineers.com>
Subject: Re: EXT || BCR analysis for Newport Naval Base

Jed,

Please see the attached. I added a column with average kW reductions. The model did include operation from 1-5 pm. Sorry for the confusion.

Naveen, can you provide your opinion on the additional cost for the 2 MW steam turbine that would be added to cases 5 & 7?

Thank you.

Regards,

Gregory S. Hester, PE LEED AP

EBD ENGINEERING
Efficient By Design
31-33 North Main Street – Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com

From: "Ferris, Gerald Jr" <Gerald.Ferris@nationalgrid.com>
Date: Friday, August 18, 2017 at 10:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>, naveen <naveenk@nkengineers.com>
Cc: Greg Hester <greg.hester@ebdengineering.com>
Subject: RE: EXT || BCR analysis for Newport Naval Base

Few suggestions;

> The super peak times are 1-5pm not 4, I am hoping that is not a big deal.
>
> Can you return the coincidental average KW reduction during the 1-5PM M-F June, July and August. Three numbers.
>
> I need the cost for each option to enter into the spreadsheet.

I can talk this afternoon, Dinesh is away at a conference.

Thanks

Jed

Gerald(Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Friday, August 18, 2017 10:46 AM
To: Ferris, Gerald Jr; naveen

Cc: Greg Hester
Subject: EXT || BCR analysis for Newport Naval Base

Jed – we discussed the next steps with the Navy, and in the attached PDF there are seven cases. Cases 4-7 all meet the 55% hurdle with a comfortable design margin, and we would like to know if they meet the BCR hurdle.

Separately, we would like to discuss one more case with yourself and Dinesh.
Would you be available for a call later today? Best,

James Falsetti Phone/Text 203-512-7446
jim.falsetti@bqenergy.com www.bqenergy.com
BQ Energy llc
400 Market Industrial Park
Suite 32
Wappingers Falls, NY 12590

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Newport CHP - Additional Modeled Options

Option #	Option Description	CHP Plant Operational Hours	Annual Electrical Energy Generated (kIWh)	Annual Fuel Consumed (MMBTU)	Annual Heat Recovered (MMBTU)	Overall Efficiency (Percent)	Estimated Annual Dollar Savings ($)	Total Generation Capacity (kW)	Generated kWh as % of Total Site Load	Notes
Base Option Originally Proposed	Operate Taurus 70 Gas Turbine 5,791 hours - No Summer Hours	[redacted]								
1	Operate Taurus 70 Gas Turbine and 2 MW Condensing Turbine All Year Round									
2	Operate Taurus 70 Gas Turbine Year Round and Connect CHP Plant to 20 klb/hr Thermal Load in Summer									Savings does not include the fossil fuel savings for what it currently costs to generate the 20 klb/hr thermal load
3	Operate Mercury 50 Gas Turbine Year Round and Connect CHP Plant to 15 klb/hr Thermal Load in Summer									Savings does not include the fossil fuel savings for what it currently costs to generate the 15 klb/hr thermal load
4	Operate Taurus 70 Gas Turbine at Full Load - 1pm - 4pm Only From May 8 - Oct 14 - No Steam Turbine									
5	Operate Taurus 70 Gas Turbine at Full Load - 1pm - 4pm Only From May 8 - Oct 14 - With 2MW Steam Turbine									
6	Operate Taurus 70 Gas Turbine at ~50% Load - 1pm - 4pm Only From May 8 - Oct 14 - No Steam Turbine									
7	Operate Taurus 70 Gas Turbine at ~50% Load - 1pm - 4pm Only From May 8 - Oct 14 - With 2MW Steam Turbine									

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 8/2/2018 10:10:08 PM
To: Holzhauer, William J. [william.holzhauer@nationalgrid.com]
Subject: FW: EXT || RE: Naval Station Newport CHP Questions

Below referenced in my prior e-mail.

My message below at 3:13p is where I conveyed gas supply information back to the customer based on verbal information I had been given.

Mark

-----Original Message-----
From: Sevier, Mark
Sent: Tuesday, January 16, 2018 11:16 AM
To: Ferris, Gerald Jr; Dunham, Jeffrey B.
Cc: Moshier, Andrea; Patel, Dinesh
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

I have a few key questions for them:

Rikert is talking about Firm vs curtailment gas rate; Jeff confirms Firm, but it would be good for me to hear someone at the Navy say they are planning on fueling their CHP / steam network on gas nearly 100% of the time once the CHP system is in place.

Is there a minimum steaming rate / boiler back-up plan for the CHP, or would they run the most efficient option of keeping boilers warm with CHP, and not using any fuel in the boilers?

Would they plan on running the CHP system only when there is sufficient thermal load to use the thermal from the gas turbine HRSG, or would they want to run the CHP system less efficiently on a calendar schedule?

Given smart answers to the above, I still find the project to pass BCR (1.55 to 1.79, depending on gas value), but if they have badly non-smart answers to the above, passing BCR could become an open question.

If you like / if it makes sense, I could join the call.

Mark

-----Original Message-----
From: Ferris, Gerald Jr
Sent: Tuesday, January 16, 2018 10:41 AM
To: Sevier, Mark; Moshier, Andrea; Patel, Dinesh
Cc: Dunham, Jeffrey B.
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

Do we have a list of questions that we asked?

We are on an update call with the Navy this afternoon and it would be nice to say we are waiting for them and apply the pressure the other way. Not sure if the questions would go to others on that call that could answer them for you?

Thanks

Jed

Gerald (Jed) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

-----Original Message-----
From: Sevier, Mark
Sent: Tuesday, January 16, 2018 10:38 AM
To: Moshier, Andrea; Ferris, Gerald Jr; Patel, Dinesh
Subject: FW: EXT || RE: Naval Station Newport CHP Questions

FYI Greg's schedule below. I will continue to work on questions we can answer, given the info we have, and the end-of-month deadline.

Mark

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, January 15, 2018 11:48 AM
To: Sevier, Mark
Subject: Re: EXT || RE: Naval Station Newport CHP Questions

Mark,

FYI, I am tied up on another project all week this week and won' t have a chance to look at the interval, fuel oil and gas data until Friday.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street - Unit 31A
Marlborough, CT 06447
860-295-3220 O
860-883-6486 C
Greg.Hester@EBDEngineering.com
www.ebdengineering.com <http://www.ebdengineering.com>

On 1/10/18, 3:13 PM, "Sevier, Mark" <Mark.Sevier@nationalgrid.com> wrote:

> Hi John -
>
> Thanks to everyone for getting the requested information.
>
> I asked internally about NGrid gas service for the proposed Navy CHP plant, and was told that NGrid will be able to serve the proposed CHP plant winter gas load with a small system reinforcement, so my understanding is that the Navy's main steam plant will not need to continue to be interruptible from NGrid's perspective. In my role (calculating the NGrid benefit/cost ratio for the CHP based on savings estimation), I need to have reasonably accurate operating parameters & expected fuel blend for the proposed CHP plant, which is why I'm bringing this up as something that might need more discussion, so we make sure we're all on the same page about plant operation & expected fuel mix.
>
> Let me know if I can help facilitate this discussion, as appropriate.
>
> Thanks,
> Mark
>
> -----Original Message-----
> From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
> Sent: Wednesday, January 10, 2018 8:32 AM
> To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
> Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
> Subject: EXT || RE: Naval Station Newport CHP Questions
>
> Bob Mulhern provided the information in the attached email.
>
> Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.

The makeup water will be required as a part of the CHP design and the existing system would have to be modified for this purpose. NAVSTA Newport still does not know details about the boilers related to the CHP and any specific requirements for electricity, steam, water, chemicals, size, data, security and controls and makeup water requirements for the CHP.

John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, January 08, 2018 10:52 AM
To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
Subject: [Non-DoD Source] Naval Station Newport CHP Questions

Good morning Dan and John,

Jim, Naveen and I have been working with National Grid on the CHP project and they are requesting additional information to update the model to make sure nothing substantial has changed that would affect the benefits of the project. Can you please review the list below and call me at your convenience to discuss?

1. Can you please provide the make and model of the existing steam meters at the boiler plant and when they were last calibrated?
2. Can you confirm if there is a water meter at the boiler plant that can be used to verify makeup water to the boiler system? If so, can you please provide water usage figures?
3. Can you please provide more recent steam metering data for the 7CC boiler plant as the data in the model ended in May 2016? The data previously provided included steam flow per boiler as well as steam flow to the deaerator
4. Can you please provide #2 and #4 monthly fuel oil usage for the 7CC boiler plant for all of 2016 and 2017 to date?
5. Can you please provide the minimum steaming rate for boiler #4 when fired on natural gas?

Thank you both for your assistance.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street - Unit 31A

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860-295-3220 O

860-883-6486 C

Greg.Hester@EBDEngineering.com

www.ebdengineering.com <http://www.ebdengineering.com>

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For the registered information on the UK operating companies within the National Grid group please use the attached link: https://www.nationalgrid.com/group/about-us/corporate-registrations

Message

From: Caliri, Stephen A. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=STEPHEN.CALIRI]
Sent: 8/6/2018 5:50:50 PM
To: Foran, Matthew A. [matthew.foran@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
CC: Arangio, Elizabeth C. [elizabeth.arangio@nationalgrid.com]
Subject: RE: LNG

Matt,

As I recall, you are correct that we have not used LNG on Aquidneck Island for supply purposes since that time. It has typically been used during off-season system maintenance. I would say that the Company would do whatever it could to avoid using portable LNG operations to support incremental customer growth.

Steve

From: Foran, Matthew A.
Sent: Monday, August 06, 2018 1:45 PM
To: Dunham, Jeffrey B.; Ferris, Gerald Jr
Cc: Arangio, Elizabeth C.; Caliri, Stephen A.
Subject: LNG

Jeff and Jed:

It is my understanding that since Algonquin's East-to-West (E2W) project was placed into service in late 2010, National Grid has not relied on LNG to provide firm service to customers who are fed from the Portsmouth take station. LNG operations are now reserved for system maintenance or emergencies. We would not reasonably pursue incremental loads that would increase our dependence on LNG supply to provide firm service. We are proposing a reasonable HDD provision which allows us to serve this load during most of the winter.

Liz and Steve: Please chime in to correct anything I have said above.

Matthew Foran
Director, Customer Gas Connections
Customer Operations
National Grid
40 Sylvan Road, E1.495
Waltham MA 02451
(781) 907-1493 office
(617) 593-0517 mobile

"Find a better way - every day."

Message

From: Ferris, Gerald Jr [/o=Grid/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=Gerald.Ferris]
on behalf of Ferris, Gerald Jr
Sent: 8/9/2018 3:36:19 AM
To: Sevier, Mark [/o=Grid/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=Mark.Sevier]
CC: Dunham, Jeffrey B. [/o=Grid/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=JEFFREY.DUNHAM]
Subject: FW: EXT || Re:
Attachments: Estimated Costs for Naval Station Newport.xlsx; E-1 Proposed interconnection of CHP 08-01-18.pdf

Not sure if Naveen sent you a copy or not.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: naveen kapur [mailto:naveenk@nkengineers.com]
Sent: Tuesday, August 07, 2018 5:32 PM
To: Ferris, Gerald Jr
Cc: Jim Falsetti
Subject: EXT || Re:

Jed
Please see the attached estimate. This estimate was prepared in Dec. 2016

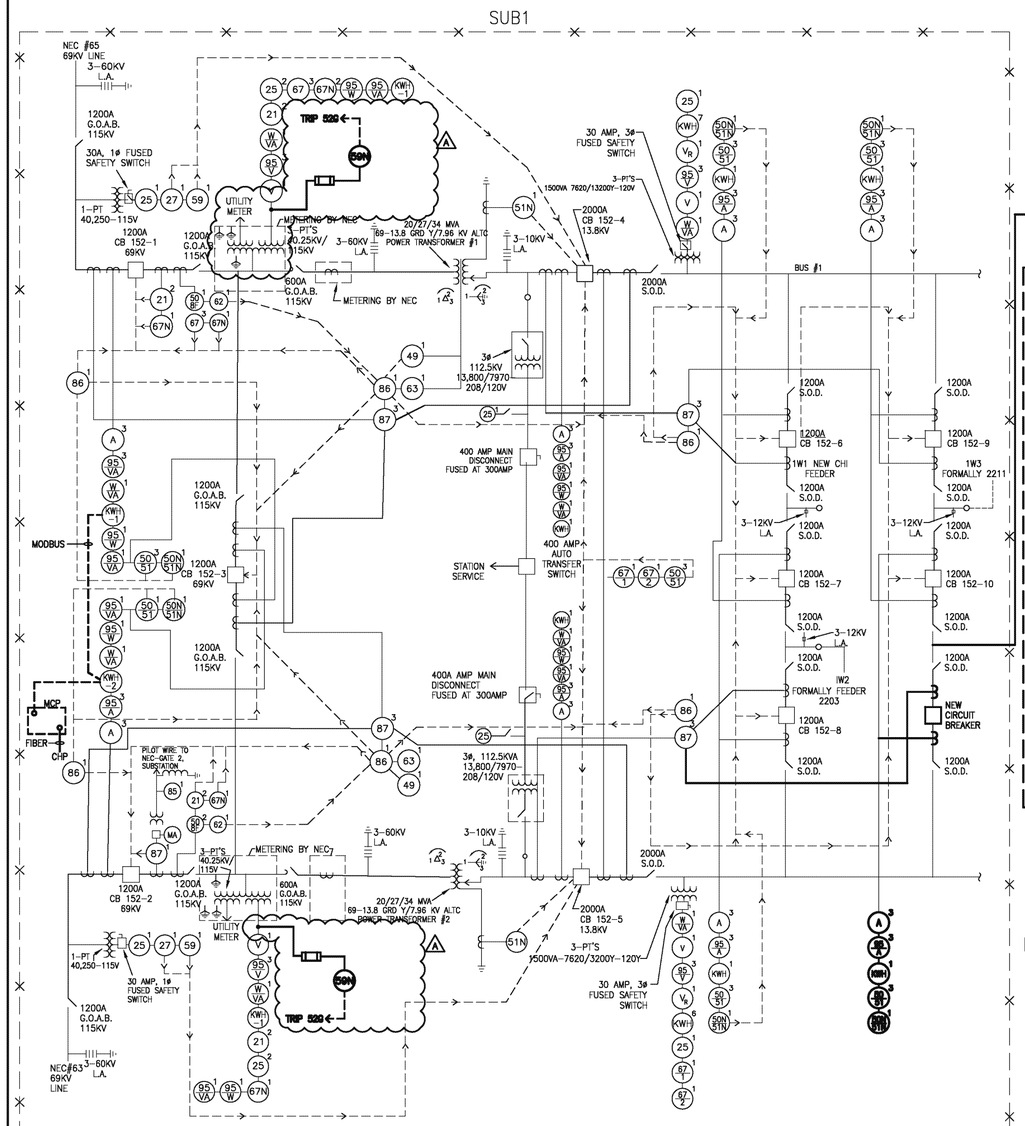
During a utility failure, we will isolate from the system & run in Island mode with only the CHP plant parasitic loads. Since 95-97% of utility failures are transitory and last a few seconds, it would be impractical to shut the turbine & restart, for a minor outage. So, we will keep the turbine operating. This will be implemented by tripping Breaker 52M1 for a grid failure, and resynchronizing the turbine across it when the feeder is re-energized. Simple but effective.

We will have the capability for Black Start Operation. This will be a manually initiated procedure which will be used for an Extended Outage (defined as more than a day). To initiate this the plant operators will open the intertie breaker at SUB1 & lock it out. All loads will at the Base will be opened manually so as not to overload the turbine. The turbine will be started from a diesel generator & when up to rated frequency & voltage Breakers 52G & 52M1 will be closed. The plant operators will then gradually add loads by closing their respective disconnect switches. When the utility feeder is reenergized, Breaker 52M1 will be opened, while 52G remains closed. All loads will be re-added. The turbine will be synchronized to the utility across 52M1 & normal operations resumed.

The above is a quick synopsis of what I think you guys are looking for

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

Total Project Cost	Mercury 50 Gas Fired Turbine with Duct Firing - Gas Fired Only	Taurus 70 Gas Fired Turbine with Duct Firing - Gas Fired Only	Taurus 70 Gas Fired Turbine with Duct Firing - Gas/Oil Fired
Total - Equipment/Material Costs	$8,469,510	$8,848,980	$9,457,980
Total - Equipment Purchased by Contractors	$147,422	$147,422	$147,422
Total - Subcontracted Labor	$6,197,259	$6,564,949	$7,333,757
Total Engineering and Design Fee's	$1,721,955	$1,788,985	$1,912,590
Total Including Owners Contingency	$16,536,146	$17,350,336	$18,851,750
Total Owner's Contingency	**$787,436**	**$826,206**	**$897,702**
Total Overall Contingency	**$1,036,811**	**$1,090,019**	**$1,191,702**
Cost per kW	**$3,675**	**$2,313**	**$2,514**

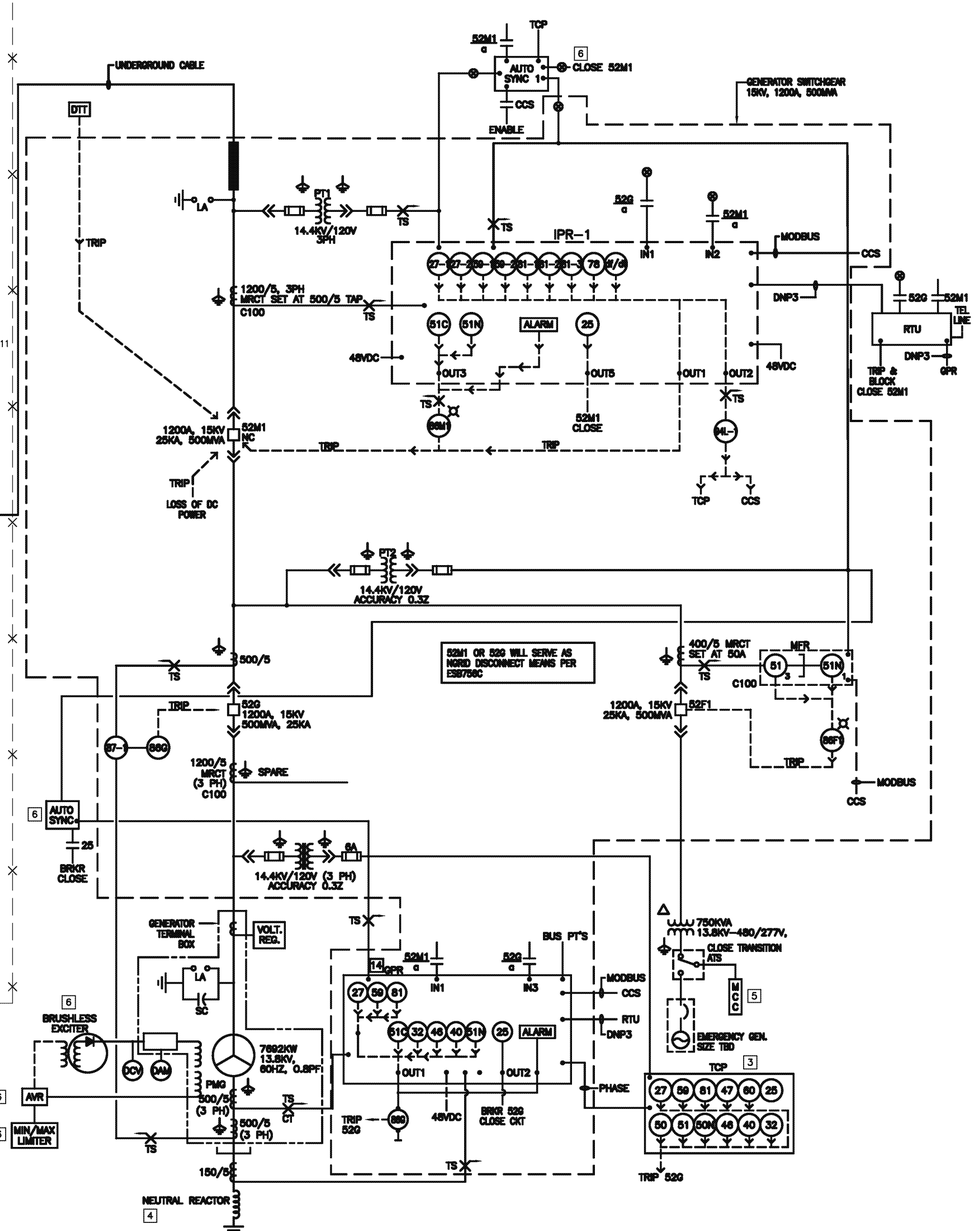


NOTES:

1. DELETED
2. NGRID TO CONFIRM
3. TBD
4. TO BE SIZED TO MAINTAIN $X_0/X_1 \leq 3$
5. MCC FOR CHP PLANT
6. FURNISHED BY TURBINE-GENERATOR MFR
7. SUB1 ONE LINE BASED ON DRAWINGS RECEIVED FROM THE NAVY, NOT VERIFIED BY NKE.

LEGEND

CCS	CENTRAL CONTROL SYSTEM
DTT	DIRECT XFER TRIP
GPR	GENERATOR PROTECTIVE RELAY
IPR	INTERTIE PROTECTIVE RELAY
TCP	TURBINE CONTROL PANEL
———	EXISTING
———	NEW



RELAY LEGEND

df/dt	– RATE OF CHANGE OF FREQUENCY	51N	– GROUND OVERCURRENT
25	– SYNC CHECK	59	– OVERVOLTAGE
27	– UNDERVOLTAGE	60	– VOLTAGE IMBALANCE
32	– REVERSE POWER	78	– VECTOR JUMP
40	– FIELD FAILURE	81O	– OVERFREQUENCY
46	– NEGATIVE SEQUENCE	81U	– UNDERFREQUENCY
47	– PHASE SEQUENCE MONITOR	94	– UTILITY FAILURE AUX. RELAY
51C	– OVERCURRENT WITH VOLTAGE CONTROL		

N.K. ENGINEERS, INC.
755 Main Street – Building 2
Monroe, Connecticut 06468
Tel. (203) 459-1200 Fax (203) 459-1212

Notes

No.	Revisions/Submissions	Date
A	REVISIONS	8/1/18

Key Plan

Facility	Project No.
Location	BURMA ROAD, MIDDLETOWN, RI 02842
Project Title	PROPOSED CHP INSTALLATION NAVSTA NEWPORT
Drawing Title	LINE LINE DIAGRAM
Approvals	Date
Drawn By: ECL	Date: 06-23-18
Checked By: NCK	Scale: NONE
CAD File	
Seal	Drawing No.: E-1

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 9/18/2018 1:56:57 AM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: Navy CHP - emails + timeline summary

What I sent to the customer & project team after getting Tom D's message; no one responded. Based on another email I sent 1/10, I think Jeff also called me to say the Navy would be on firm gas.

From: Sevier, Mark
Sent: Wednesday, January 10, 2018 3:12 PM
To: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport; Dion, Thomas
Subject: RE: EXT || RE: Naval Station Newport CHP Questions

Hi John -

Thanks to everyone for getting the requested information.

I asked internally about NGrid gas service for the proposed Navy CHP plant, and was told that NGrid will be able to serve the proposed CHP plant winter gas load with a small system reinforcement, so my understanding is that the Navy's main steam plant will not need to continue to be interruptible from NGrid's perspective. In my role (calculating the NGrid benefit/cost ratio for the CHP based on savings estimation), I need to have reasonably accurate operating parameters & expected fuel blend for the proposed CHP plant, which is why I'm bringing this up as something that might need more discussion, so we make sure we're all on the same page about plant operation & expected fuel mix.

Let me know if I can help facilitate this discussion, as appropriate.

Thanks,
Mark

-----Original Message-----
From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
Sent: Wednesday, January 10, 2018 8:32 AM
To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
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Subject: EXT || RE: Naval Station Newport CHP Questions

Bob Mulhern provided the information in the attached email.

Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.

The makeup water will be required as a part of the CHP design and the existing system would have to be modified for this purpose. NAVSTA Newport still does not know details about the boilers related to the CHP and any specific requirements for electricity, steam, water, chemicals, size, data, security and controls and makeup water requirements for the CHP.

John Reichert, IEM PWD Newport FMD
PH 401-841-7778, email: john.reichert@navy.mil

-----Original Message-----
From: Greg Hester [mailto:greg.hester@ebdengineering.com]
Sent: Monday, January 08, 2018 10:52 AM
To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport

Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
Subject: [Non-DoD Source] Naval Station Newport CHP Questions

Good morning Dan and John,

Jim, Naveen and I have been working with National Grid on the CHP project and they are requesting additional information to update the model to make sure nothing substantial has changed that would affect the benefits of the project. Can you please review the list below and call me at your convenience to discuss?

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4. Can you please provide #2 and #4 monthly fuel oil usage for the 7CC boiler plant for all of 2016 and 2017 to date?
5. Can you please provide the minimum steaming rate for boiler #4 when fired on natural gas?

Thank you both for your assistance.

Regards,

Gregory S. Hester, PE LEED AP

31-33 North Main Street - Unit 31A

Marlborough, CT 06447

860-295-3220 O

860-883-6486 C

Greg.Hester@EBDEngineering.com

www.ebdengineering.com <http://www.ebdengineering.com>

Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 9/18/2018 9:50:56 PM
To: Henschel, Rachel [rachel.henschel@nationalgrid.com]
Subject: RE: Navy CHP - emails + timeline summary

Was it your impression at last Thursday's meeting that the Division wasn't going to send any more IRs?

I have cooperated throughout this entire project, including anchoring the BC ratio, reviewing and manipulating the CHP energy model, IR responses, assisting with defining the HDD interruption condition, and internally raising concerns about things I thought were serious and obvious flaws being exposed to the Division / regulators that might have been avoided based on what I knew of what transpired. My impression was that would be most useful and efficient for the company to get through the process, but I again seem to have missed the mark on what other participants wanted from me.

Mark

-----Original Message-----
From: Henschel, Rachel
Sent: Tuesday, September 18, 2018 3:41 PM
To: Sevier, Mark
Subject: RE: Navy CHP - emails + timeline summary

Mark,

We've submitted the data requests explaining the error and had a two hour meeting with the Division that was very frank, candid and transparent. The focus now is resolving this for the customer, finalizing the contract for interruptible service, completing all of the follow-up data requests for the Division. Please help with the requests for external emails and any other data requests that touch on the bc ratio.

Rachel

-----Original Message-----
From: Sevier, Mark
Sent: Monday, September 17, 2018 9:57 PM
To: Henschel, Rachel
Subject: Navy CHP - emails + timeline summary

I think it takes a pretty generous person to call it a mistake when the customer highlights a concern about gas supply (below email from Reichert) and the NGrid gas supply folks don't seem to do much to investigate the concern. At the time in January, I didn't fully understand what this was about, and Tom/Jeff/Jed were all telling me this was a small cost issue, without any substantive response to John Reichert's concern; I knew to ask the gas supply question, but did not know enough about the situation to evaluate the answer/direction I got.

Below internal messages for background; just letting you know the subsequent external e-mail interaction with the customer & project team (which I will also forward) might undermine the 'mistake' description, since this was essentially a discussion about the gas constraint before the offer letter. I don't think it's going to look good that both the customer and the Division seem to be more concerned about gas supply than NGrid, so I wanted to give you a heads up.

From: Dion, Thomas
Sent: Wednesday, January 10, 2018 11:33 AM
To: Sevier, Mark
Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr
Subject: Re: EXT || RE: Naval Station Newport CHP Questions

Good morning all,
The statement by John Reichert is no longer accurate. I submitted the project to engineering for approval. We will need a small system reinforcement, but we can supply the CHP project.
Tom

Sent from my Mobile Device

> On Jan 10, 2018, at 10:12 AM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>
> Hi Tom -
>
> Below, John at the Navy says the NGrid gas system can't support their gas demand pre-CHP during cold temps, where in our conversation last summer / fall, I thought you said otherwise, and that NGrid's

system could support the post CHP gas demand. Looking at the CHP + duct burner hourly model, I find 142 MMBTU/hr as the maximum gas demand, as seen in the attached.
>
> Can you comment on the minimum available gas supply, or is there any information I can get to help resolve this question?
>
> Thanks,
> Mark
>
> -----Original Message-----
> From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
> Sent: Wednesday, January 10, 2018 8:32 AM
> To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
> Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
> Subject: EXT || RE: Naval Station Newport CHP Questions
>
> Bob Mulhern provided the information in the attached email.
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>
>
> John Reichert, IEM PWD Newport FMD
> PH 401-841-7778, email: john.reichert@navy.mil
>
>
> -----Original Message-----
> From: Greg Hester [mailto:greg.hester@ebdengineering.com]
> Sent: Monday, January 08, 2018 10:52 AM
> To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
> Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
> Subject: [Non-DoD Source] Naval Station Newport CHP Questions
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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 9/19/2018 10:44:42 AM
To: M_sev@yahoo.com
Subject: FW: Navy CHP - emails + timeline summary

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Sent: Tuesday, September 18, 2018 11:34 AM
To: Isberg, John F.
Subject: RE: Navy CHP - emails + timeline summary

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Message

From: Sevier, Mark [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MARK.SEVIER]
Sent: 9/26/2018 9:03:49 PM
To: m_sev@yahoo.com
Subject: FW: question

-----Original Message-----
From: Holzhauer, William J.
Sent: Monday, September 24, 2018 9:16 AM
To: Sevier, Mark
Cc: Holzhauer, William J.
Subject: RE: question

Mark, yes he takes the same training. You have raised your concerns so in my mind you have done your job. I would leave it at this point.

William J. Holzhauer
US Director of Ethics and Compliance
National Grid
300 Erie Boulevard West
Syracuse, New York 13202
(315)-428-6341 (phone)
(315)-428-6407 (fax)
william.holzhauer@nationalgrid.com

Business Conduct Office Toll-Free Helpline 888.867.6759;
Email: businessconduct@nationalgrid.com
24-hour AlertLine staffed by an independent company, provided for
Anonymous reporting, can be contacted by telephone (1-800-465-0121)
or the Internet: https://www.nationalgridalertlineus.com/
Business Conduct Office Infonet site:
http://us1infonet/sites/ethics2/Pages/Default.aspx

-----Original Message-----
From: Sevier, Mark
Sent: Friday, September 21, 2018 2:23 PM
To: Holzhauer, William J.
Subject: question

Do VPs take the same ethics & business conduct trainings that I'm obligated to take? See below.
Note that NGrid provides this customer with gas supply, so there is no 3rd party to credit for 'forgetting' to check on gas supply when the customer highlighted the concern.

At one point in a verbal conversation Monday, John said NGrid could go ahead with this CHP project without Division / Regulator support, which doesn't sound like the spirit of the 'Regulatory Basics' training that recently popped in my Learning Link queue. I work a few layers below John, so challenging him is probably not a good idea for my future at NGrid.

If I'm mis-interpreting the messages provided in the learning link / ethics trainings, please let me know.

Thanks,
Mark

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Sent: 10/31/2018 3:26:12 PM
To: Foran, Matthew A. [matthew.foran@nationalgrid.com]
Subject: FW: EXT || RE: Naval Station Newport CHP Questions

Thomas Dion C.E.M.
Lead Account Manager- Gas Connections RI
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

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Message

From: Ferris, Gerald Jr [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GERALD.FERRIS]
Sent: 11/4/2018 7:13:52 PM
To: Foran, Matthew A. [/o=grid/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=matthew.foran]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Dion, Thomas [thomas.dion@nationalgrid.com]; Duggan, Francis E. [francis.duggan@nationalgrid.com]
Subject: FW: EXT || RE: NKE responses
Attachments: Navy CHP incentive paperwork_DON - NKE Comments 5-15-18.docx

This was questions from BQ and the Navy that came in after the project had been signed.

Page 5 of 6 item 3 discusses the "known pressure problem on aquidneck island".

We had an in-person meeting with them; all three of us. Jeff, Tom and Jed to discuss all these questions and answers. I believe Tom answered in person all the gas questions.

I believe this was a statement from Tom Reichart.

Gerald (*Jed*) Ferris
NE CHP Project Manager
National Grid
280 Melrose Street
Providence RI 02907
401 784-7364 Work
401 450-9416 Cell
Gerald.ferris@nationalgrid.com

From: Jim Falsetti [mailto:jim.falsetti@bqenergy.com]
Sent: Thursday, May 17, 2018 6:59 AM
To: naveen kapur; Dunham, Jeffrey B.; Ferris, Gerald Jr; Paul Curran; Carey Kling
Subject: EXT || RE: NKE responses

All – attached is the BQ comments added to NKE comments (in red, boldfaced and highlighted for clarity).

Big picture: No interruptible gas option, no dual fuel for duct burner or CHP is in the scope; limited black start capability; additional items such as these are possible as (1) a future modification or (2) if the Navy wishes to increase their funding and/or (3) forego the $7million performance incentive.

The balance of the comments will be addressed during the next phase in the design, and we should add **some** of these to the June 5 or 6 meeting agenda.

Best,

Jim Falsetti www.bqenergy.com Phone/Text 203-512-7446

From: naveen kapur <naveenk@nkengineers.com>
Sent: Wednesday, May 16, 2018 10:19 PM
To: Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Ferris, Gerald <Gerald.Ferris@nationalgrid.com>; Jim Falsetti <jim.falsetti@bqenergy.com>; Paul Curran <paul.curran@bqenergy.com>; Carey Kling

<carey.kling@bqenergy.com>
Subject: FW: NKE responses

FYI

Naveen Kapur, PE
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(O) 203-459-1200
(C) 203-209-3884

From: naveen kapur <naveenk@nkengineers.com>
Date: Tuesday, May 15, 2018 at 8:57 AM
To: Jim Falsetti <jim.falsetti@bqenergy.com>
Subject: NKE responses

As promised.
Feel free to call to discuss

Naveen Kapur, PE
N.K. Engineers, Inc
755 Main Street
Monroe, CT 06468
(O) 203-459-1200
(C) 203-209-3884

Confidential Document Withheld from Production

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 11/6/2018 4:38:48 PM
To: Foran, Matthew A. [matthew.foran@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
CC: Duggan, Francis E. [francis.duggan@nationalgrid.com]
Subject: RE: Navy DR 9-9
Attachments: Re_ EXT __ RE_ Naval Station Newport CHP Questions.msg

Re_ EXT __ RE_ Naval Station Ne...

Matt,
Somewhat related to what you are asking.
Internal email referencing issue.

Tom

Thomas Dion C.E.M.
Lead Account Manager- Gas Connections RI
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Foran, Matthew A.
Sent: Saturday, November 03, 2018 10:48 PM
To: Dion, Thomas; Dunham, Jeffrey B.; Ferris, Gerald Jr
Cc: Duggan, Francis E.
Subject: Navy DR 9-9
Importance: High

Guys

Can you help me answer this one? Can you look through emails to provide context and any follow up on this?

Matt

DR Title : 4755-Navy CHP Project::DIV Set 9

DR Question Title : DIV 9-9
DR Question :
Among the copies of emails provided on October 11 (Division 4-1, page 1285), the Company received a set of questions from the Navy and BQ Energy on May 15, 2018. One of the questions asked:

"It is commonly known that natural gas pressure on the island is insufficient to meet the winter demand load on

Aquidneck Island. What is being done to increase the supply to the island to satisfy the large GTG natural gas demand?"

Did the Company take any steps to investigate the answer to this question? If so, what was the answer given?

Matthew Foran
Director, Customer Gas Connections
Customer Operations
National Grid
40 Sylvan Road, E1.495
Waltham MA 02451
(781) 907-1493 office
(617) 593-0517 mobile

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 1/10/2018 4:33:19 PM
To: Sevier, Mark [mark.sevier@nationalgrid.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: Re: EXT || RE: Naval Station Newport CHP Questions

Good morning all,
The statement by John Reichert is no longer accurate. I submitted the project to engineering for approval. We will need a small system reinforcement, but we can supply the CHP project.
Tom

Sent from my Mobile Device

> On Jan 10, 2018, at 10:12 AM, Sevier, Mark <Mark.Sevier@nationalgrid.com> wrote:
>
> Hi Tom -
>
> Below, John at the Navy says the NGrid gas system can't support their gas demand pre-CHP during cold temps, where in our conversation last summer / fall, I thought you said otherwise, and that NGrid's system could support the post CHP gas demand. Looking at the CHP + duct burner hourly model, I find 142 MMBTU/hr as the maximum gas demand, as seen in the attached.
>
> Can you comment on the minimum available gas supply, or is there any information I can get to help resolve this question?
>
> Thanks,
> Mark
>
> -----Original Message-----
> From: Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [mailto:john.reichert@navy.mil]
> Sent: Wednesday, January 10, 2018 8:32 AM
> To: Greg Hester; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Kemp, Debra K CIV NAVFAC HQ, AM; Breckner, John K CIV NAVFAC MIDLANT, PW; Pascual, Beth A CIV NAVFAC LANT, PW64
> Cc: Dunham, Jeffrey B.; Ferris, Gerald Jr; Sevier, Mark; Jim Falsetti; Naveen; Mulhern, Robert CIV NAVFAC MIDLANT, PWD Newport; Smith, Elizabeth A CIV NAVFAC MIDLANT, PWD Newport; StLaurent, John R CIV NAVFAC MIDLANT, PWD Newport
> Subject: EXT || RE: Naval Station Newport CHP Questions
>
> Bob Mulhern provided the information in the attached email.
>
> Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.
>
> The makeup water will be required as a part of the CHP design and the existing system would have to be modified for this purpose. NAVSTA Newport still does not know details about the boilers related to the CHP and any specific requirements for electricity, steam, water, chemicals, size, data, security and controls and makeup water requirements for the CHP.
>
>
> John Reichert, IEM PWD Newport FMD
> PH 401-841-7778, email: john.reichert@navy.mil
>
>
> -----Original Message-----
> From: Greg Hester [mailto:greg.hester@ebdengineering.com]
> Sent: Monday, January 08, 2018 10:52 AM
> To: Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport
> Cc: Dunham, Jeffrey B.; Ferris, Gerald; Sevier, Mark; Jim Falsetti; Naveen
> Subject: [Non-DoD Source] Naval Station Newport CHP Questions
>
> Good morning Dan and John,

>
>
>
> Jim, Naveen and I have been working with National Grid on the CHP project and they are requesting additional information to update the model to make sure nothing substantial has changed that would affect the benefits of the project. Can you please review the list below and call me at your convenience to discuss?
>
>
>
> 1. Can you please provide the make and model of the existing steam meters at the boiler plant and when they were last calibrated?
> 2. Can you confirm if there is a water meter at the boiler plant that can be used to verify makeup water to the boiler system? If so, can you please provide water usage figures?
> 3. Can you please provide more recent steam metering data for the 7CC boiler plant as the data in the model ended in May 2016? The data previously provided included steam flow per boiler as well as steam flow to the deaerator
> 4. Can you please provide #2 and #4 monthly fuel oil usage for the 7CC boiler plant for all of 2016 and 2017 to date?
> 5. Can you please provide the minimum steaming rate for boiler #4 when fired on natural gas?
>
>
>
> Thank you both for your assistance.
>
>
>
> Regards,
>
>
>
> Gregory S. Hester, PE LEED AP
>
>
>
>
>
> 31-33 North Main Street - Unit 31A
>
> Marlborough, CT 06447
>
> 860-295-3220 O
>
> 860-883-6486 C
>
> Greg.Hester@EBDEngineering.com
>
> www.ebdengineering.com <http://www.ebdengineering.com>
>
>
>
>
>
>
>
> <navy est hourly gas demand.docx>

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 11/6/2018 5:08:16 PM
To: Foran, Matthew A. [matthew.foran@nationalgrid.com]; Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]
Subject: RE: Navy DR 9-9

Matt,
I think the question posed to me by Mark Sevier was both pre CHP and post CHP.
Our message to the Navy has always been we have an issue on the island.
The central plant has always been curtailed.
We built a small LNG off-loading facility on Navy land to help the system in Newport.
The message has always been we have an issue.

I also think John Reichert believed the central plant and CHP would be one account.
He was afraid of losing the non firm status and the 20% discount on transportation for the account.
They also built a bulk oil facility and he needs to justify this expense.

Maybe I read too deep into the question.
But I am pretty sure that John was asking "How can we now supply a CHP on firm gas when for years we have said the central plant could not be firm.
And remember, John does not want firm gas at either.

Tom

> Another main point is the requirement from NAVSTA Newport concerning interruptible gas supply: We were told by National Grid that the natural gas supply system operated by National Grid could not support the winter gas requirement for the main steam plant (bldg. 7CC) because of the community demands during cold weather. We typically get curtailed on natural gas supply between 4 to 6 weeks each year which means without a dual fuel capability for the CHP the electrical and heat production would be zero. There is a large cost difference for natural gas purchase between firm gas supply and interruptible gas supply. A firm gas supply as a new account would increase the system requirements for the entire island and gas supply system and the costs charged to NAVSTA would be very high and the benefits (cost and gas load) of the existing interruptible account would be lost. We also have the dual fuel capability as #4 & #2 fuel oil and bulk storage.

Thomas Dion C.E.M.
Lead Account Manager- Gas Connections RI
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Foran, Matthew A.
Sent: Tuesday, November 06, 2018 11:47 AM

To: Dion, Thomas; Dunham, Jeffrey B.; Ferris, Gerald Jr
Subject: RE: Navy DR 9-9

Tom

I am confused by your email response to the National Grid team. It is difficult to infer what you meant by his statement no longer being accurate.

"The statement by John Reichert is no longer accurate. I submitted the project to engineering for approval. We will need a small system reinforcement, but we can supply the CHP project."

John's email was specifically referring to the central steam plant and not the CHP. He referred to the system issues and seemed concerned about paying for firm gas at the central steam plant vs "cheaper" interruptible gas. We know that affecting the central steam plant was never supposed to be part of the plan.

Can you confirm in your statement above that you were only referring to the CHP plant and NOT the central steam plant?

Matthew Foran
Director, Customer Gas Connections
Customer Operations
National Grid
(617) 593-0517 mobile

From: Dion, Thomas
Sent: Tuesday, November 06, 2018 11:39 AM
To: Foran, Matthew A.; Dunham, Jeffrey B.; Ferris, Gerald Jr
Cc: Duggan, Francis E.
Subject: RE: Navy DR 9-9

<< Message: Re: EXT || RE: Naval Station Newport CHP Questions >>

Matt,
Somewhat related to what you are asking.
Internal email referencing issue.

Tom

Thomas Dion C.E.M.
Lead Account Manager- Gas Connections RI
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Foran, Matthew A.
Sent: Saturday, November 03, 2018 10:48 PM

To: Dion, Thomas; Dunham, Jeffrey B.; Ferris, Gerald Jr
Cc: Duggan, Francis E.
Subject: Navy DR 9-9
Importance: High

Guys

Can you help me answer this one? Can you look through emails to provide context and any follow up on this?

Matt

DR Title : 4755-Navy CHP Project::DIV Set 9

DR Question Title : DIV 9-9
DR Question :
Among the copies of emails provided on October 11 (Division 4-1, page 1285), the Company received a set of questions from the Navy and BQ Energy on May 15, 2018. One of the questions asked:

"It is commonly known that natural gas pressure on the island is insufficient to meet the winter demand load on Aquidneck Island. What is being done to increase the supply to the island to satisfy the large GTG natural gas demand?"

Did the Company take any steps to investigate the answer to this question? If so, what was the answer given?

Matthew Foran
Director, Customer Gas Connections
Customer Operations
National Grid
40 Sylvan Road, E1.495
Waltham MA 02451
(781) 907-1493 office
(617) 593-0517 mobile

Message

From: Mokey, Mike [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MIKE.MOKEY]
Sent: 11/7/2018 8:54:55 PM
To: Doyle, Kerrie [kerrie.doyle@nationalgrid.com]; Foran, Matthew A. [matthew.foran@nationalgrid.com]
CC: Duggan, Francis E. [francis.duggan@nationalgrid.com]
Subject: RE: Emails regarding Navy CHP Project
Attachments: RE_ Naval Station Newport CHP Project.msg; RE_ Naval Station Newport CHP Project.msg

Sorry for the delay, but I have the same emails that Kerrie sent with an added line or two of questions we asked.
Thanks -Mike

From: Doyle, Kerrie
Sent: Wednesday, October 31, 2018 11:11 AM
To: Foran, Matthew A.; Mokey, Mike
Cc: Duggan, Francis E.
Subject: RE: Emails regarding Navy CHP Project

Hi Matt,
I have attached a couple of emails I have regarding the Navy Project. Not sure if it will have any information needed to for discovery. But from the information on the emails, I would reach out to Steve Caliri and Tom Dion. Looks like Steve had assisted in the first round of discovery questions, and Tom worked on the project with the EE team.

Thanks, Kerrie

From: Foran, Matthew A.
Sent: Wednesday, October 31, 2018 10:52 AM
To: Doyle, Kerrie <Kerrie.Doyle@nationalgrid.com>; Mokey, Mike <Mike.Mokey@nationalgrid.com>
Cc: Duggan, Francis E. <Francis.Duggan@nationalgrid.com>
Subject: Emails regarding Navy CHP Project
Importance: High

Kerrie and Mike:

Were you involved in any emails regarding the Navy CHP project in Newport RI? From approx. mid-2017 through July 2018. We are in the middle of discovery and the RI Division has asked for emails related to the project.

Please let me know.

Matt

Message

From: Doyle, Kerrie [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=KERRIE.DOYLE]
Sent: 5/7/2018 3:54:02 PM
To: Dion, Thomas [thomas.dion@nationalgrid.com]; Maclean, Lauren [lauren.maclean@nationalgrid.com]; Carlino, Mario [mario.carlino@nationalgrid.com]
CC: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Afonso, Jacques R. [jacques.afonso@nationalgrid.com]; Mokey, Mike [mike.mokey@nationalgrid.com]; Moreira, David [david.moreira@nationalgrid.com]; Flynn, Brandon [brandon.flynn@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

Congratulations Everyone! Good Work!

Tom,
Let me know when the work package is put together and we can work with the team on fast tracking the reinforcement piece so we can get in before paving starts.

Mario,
Can you talk with construction and let them know this will be coming to them soon and what we need to do to fast track.

Thanks,
Kerrie Doyle
Manager, Complex Gas Connections
national**grid** | 40 Sylvan Rd, Waltham, Ma 02451
☎ Tel 781-907-2201 ☎ Mobile: 781-999-3251
Kerrie.doyle@nationalgrid.com

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren <Lauren.Maclean@nationalgrid.com>; Carlino, Mario <Mario.Carlino@nationalgrid.com>
Cc: Dunham, Jeffrey B. <Jeffrey.Dunham@nationalgrid.com>; Paine, Fred <Fred.Paine@nationalgrid.com>; Doyle, Kerrie <Kerrie.Doyle@nationalgrid.com>; Afonso, Jacques R. <Jacques.Afonso@nationalgrid.com>; Mokey, Mike <Mike.Mokey@nationalgrid.com>; Moreira, David <David.Moreira@nationalgrid.com>; Flynn, Brandon <Brandon.Flynn@nationalgrid.com>
Subject: Naval Station Newport CHP Project

Good morning and great news!
The Naval Station Newport CHP project has been sold.

Congratulations to Jeff Dunham from our EE Team for a job well done.

The new unit will be located near the Power Plant at Naval Station Newport and will be owned and operated by;

Customer
BQ Energy LLC
400 Market Industrial Park, Suite 32
Wappinggers Falls, NY 12590
Contact

James Falsetti
203-512-7446
Jim.falsetti@bgenergy.com

Rate 24EN C&I Extra Large High Load FT1
126,000 CFH gas flow.
We will supply line pressure thru the meter and the customer will be responsible for boosting the gas pressure to what is required.

In order to supply the new cogen unit we need a new 100' 8" service on the property and approx. 3000' of 12" WS 99 psi growth reinforcement on Green End Ave Middletown.
Green End Ave is on the list of streets to be repaved so we need to coordinate with the Town of Middletown for the reinforcement.

We will handle digging on Navy property with a Navy Contract Modification that is in the works.

We need to get the Growth Reinforcement keyed up as soon as possible so we can meet the need date of June 2019.

This is an awesome project for both the Energy Efficiency and Gas Growth teams.
In addition to the energy savings realized, this project will bring in 533,731 ADTH and $720,354 in new margin.

This project has been in the works for over 1 ½ years and was signed last week.

Please let me know if you need any additional information.

Thanks
Tom

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

From: Dion, Thomas [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=THOMAS.DION]
Sent: 5/7/2018 1:50:07 PM
To: Mokey, Mike [mike.mokey@nationalgrid.com]
Subject: RE: Naval Station Newport CHP Project

No, we are actually pretty good.
Just the reinforcement to send gas from the east side of the island to the west.

Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

From: Mokey, Mike
Sent: Monday, May 07, 2018 9:34 AM
To: Dion, Thomas
Subject: RE: Naval Station Newport CHP Project

Awesome Tom. Is Newport under any constraints from the SRI capacity/ transmission project?

From: Dion, Thomas
Sent: Monday, May 07, 2018 9:27 AM
To: Maclean, Lauren; Carlino, Mario
Cc: Dunham, Jeffrey B.; Paine, Fred; Doyle, Kerrie; Afonso, Jacques R.; Mokey, Mike; Moreira, David; Flynn, Brandon
Subject: Naval Station Newport CHP Project

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203-512-7446
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Thomas Dion C.E.M.
National Grid
280 Melrose St
Providence, RI 02907
P. 401-784-7153
F. 401-406-3434

Message

Subject: Navy CHP
Attachments: Navy CHP.msg

Subject: Navy CHP
Location: conference call 866 662 9987 code 92406558#

Start: Mon 8/14/2017 3:00 PM
End: Mon 8/14/2017 3:30 PM

Recurrence: (none)

Meeting Status: Meeting organizer

Organizer: Dunham, Jeffrey B.
Required Attendees: Ferris, Gerald Jr; Paine, Fred; Henschel, Rachel; Sevier, Mark; Dipetrillo, Mark; Moreira, David

Can we have a quick call next week?

Can you explain how the "in-kind" payment works? I'm interested to know if there's more than just an incentive being offered.

Also can you clarify what you're looking for from the folks on the email? An exemption to the 55% minimum and/or anything on the payment?

What year will this begin operating?

If my understanding is correct, this CHP is payment in kind for the developers who are installing 3 solar fields on Navy property, if that is correct perhaps we could utilize the benefits of the solar field as a reason to allow for an efficiency less than 55%. Can you confirm if this is payment in kind.

The Navy has reached out to me to ask if there is some way to get approval for a waiver on the minimum 55% efficiency criteria for the performance of the CHP. They suggested a pro-rated incentive if the performance falls below the minimum or a lower incentive per KW. Any thoughts as to whom this can be sent to for consideration?

Appointment

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 8/10/2017 5:14:20 PM
To: Dunham, Jeffrey B. [jeffrey.dunham@nationalgrid.com]; Ferris, Gerald Jr [gerald.ferris@nationalgrid.com]; Paine, Fred [fred.paine@nationalgrid.com]; Henschel, Rachel [rachel.henschel@nationalgrid.com]; Sevier, Mark [mark.sevier@nationalgrid.com]; Dipetrillo, Mark [mark.dipetrillo@nationalgrid.com]; Moreira, David [david.moreira@nationalgrid.com]
Subject: Navy CHP
Location: conference call 866 662 9987 code 92406558#
Start: 8/14/2017 7:00:00 PM
End: 8/14/2017 7:30:00 PM
Show Time As: Busy
Required Attendees: Ferris, Gerald Jr; Paine, Fred; Henschel, Rachel; Sevier, Mark; Dipetrillo, Mark; Moreira, David

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Message

Subject: Naval Station
Attachments: Naval Station.msg

Subject: Naval Station
Location: Newport

Start: Wed 9/27/2017 10:00 AM
End: Wed 9/27/2017 11:00 AM

Recurrence: (none)

Meeting Status: Meeting organizer

Organizer: Dunham, Jeffrey B.
Required Attendees: Paine, Fred; 'Cournoyer, Raymond L CIV NAVFAC MIDLANT, PWD Newport'; Sprague, James CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport

John can you forward to Steve Stringham

Meeting to review energy efficiency projects identified and also discuss status CHP , method of future incentive payment methods and review Gas projects

Appointment

From: Dunham, Jeffrey B. [/O=GRID/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFFREY.DUNHAM]
Sent: 9/7/2017 6:21:58 PM
To: Paine, Fred [fred.paine@nationalgrid.com]; 'Cournoyer, Raymond L CIV NAVFAC MIDLANT, PWD Newport' [raymond.Cournoyer@navy.mil]; Sprague, James CIV NAVFAC MIDLANT, PWD Newport [james.sprague1@navy.mil]; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport [john.reichert@navy.mil]; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport [daniel.l.sullivan3@navy.mil]
Subject: Naval Station
Location: Newport
Start: 9/27/2017 2:00:00 PM
End: 9/27/2017 3:00:00 PM
Show Time As: Busy
Recurrence: (none)
Required Attendees: Paine, Fred; 'Cournoyer, Raymond L CIV NAVFAC MIDLANT, PWD Newport'; Sprague, James CIV NAVFAC MIDLANT, PWD Newport; Reichert, John C CIV NAVFAC MIDLANT, PWD Newport; Sullivan, Daniel L CIV NAVFAC MIDLANT, PWD Newport

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